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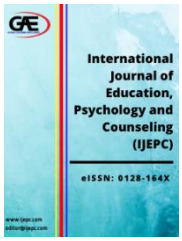

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"MUDA": SIMPLIFYING TRANSLITERATION AND TRANSCRIPTION OF ARABIC TEXT

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Abstract:

This study aims to propose a new system in Arabic romanization to simplify the typing process by using the QWERTY keyboard. The proposed system will be named as "MUDA" as the main author's surname and the name itself is nearly similar to the word "MUDA"H in Malay which mean easy or simple that represent the concept of the system. This is to facilitate the needs of the writers, and to decrease the gap of ambiguity for the systems created previously with the one that can increase the product of academic writing when dealing with Arabic romanization. The data of this study is analysed by finding the similarity within the previous transliteration systems and the phonetic system in English. Both systems then will be analysed by comparing them with the characters on the typing keyboard in terms of similarity. This study found that there are 23 keys will be used in 3 ways as follow; (i) single character typing excluding shift; (ii) shift + character (T, S, D, Z,"); and (iii) combining character (th, sh, gh, kh, dz). This explains that no more complicated system of typing process will occur. Hence the speed of completing task in typing Arabic romanization will become faster.

Keywords:

Arabic, Character, Romanization, Simplify Typing, Typing Keyboard, Word Processing

Introduction

Arabic has its own character as what Japanese, Russian, Tamil and others do. A complete and accurate romanization system may not be needed among native Arabic speakers since they are familiar with Arabic characters and it's writing system. The ability of pronouncing names and reading sentences aloud correctly should be presented too. Abdallah & Mohammad (2018)

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identified (i) individual; such as articulation and speech disorder, (ii) family; for instance, how is the religion being practiced, (iii) society; which include the educational system, and (iv) international policies; for example, in making decision of which language to be considered for instruction as the factors contribute to the Arabic language weakness among the student. Meanwhile, Nadwah & Nadhilah (2014) believed that the difficulties and weaknesses of learning Arabic affect the performance of an individual to accomplish a certain task related to Arabic language. One of the ways to simplify the non-roman language learning then is by using romanization which can be very useful for those who are still not familiar with Arabic character. Here comes the role of transliteration and transcription as a good start for learning, pronouncing correctly, and distinguishing phonemes (Shweiry, 2019). Other than this situation, romanization is needed in writing Arabic words or names in non-Arabic article, such as in writing the references. This study expects to produce a new writing system for Arabic romanization which is very beneficial to the writer when dealing with typing of words in term of increasing the speed of typing so called "MUDA" as the first researcher's surname and the name itself is nearly similar to the word "MUDAH" in Malay which mean easy or simple that represents the concept of the system. "MUDA" as the romanization system suggested to be the finding of the study that will be used throughout the study especially in writing references that relate to Arabic words.

The varieties of consonants and vowels, on the other hand, reflect the sociolinguistics from a district to another district which make Arabic for instance, during the writing of Arabic names and words in English or Roman texts are quite difficult to be spelled. The Roman character is used by a number of European languages. Transcription is one of the approaches to transcribe the Arabic words in the written of Roman character. However, due to the difference and inexistence of a few Arabic consonants in other languages, several systems have been introduced but no one has been universally accepted (al-Bab.com, n.d.). Some of the famous systems are:

1. ALA-LC Romanization Tables
2. ISO 233,
3. British Standard BS 4280:1968
4. United Nations Romanization System for Geographical Names.

Even though mark is added to a letter to signal a change in either the sound or meaning of a character (Dictionary.com, 2021) these systems contain symbols which are not listed on the typing keyboard and urge the writer to scroll from the symbol list in the word processor which led to time consumption during typing.

Research Problem

The spread of using the Roman scripts is claimed to be because of the technical elements that lead to the extensive usage of English and the ease and swiftness in writing. Anyone who does not have time to learn a non-Latin language would benefit from the romanization as a short cut to use the language (Transparent Language, 2014). Young Arab people tend to use transliteration to have more opportunities to meet foreigners in this interconnected world where English is the lingua franca for those who do not share a mother tongue (Hamdan, 2010).

During the typesetting of 130000-word manuscript of Revolt in the Desert, 1962, it was spotted with full of inconsistencies in the spelling of proper names, such as "Jeddah" sometimes written

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as “Jidda” and “Mayin” became “el-Main”, “el-Mayein”, “el-Mayin” and “el-Muyein”. This kind of inconsistencies might not be seriously debated in non-academic matters, but it might be troublesome in the other situation, especially in academic publications (al-Bab.com, n.d).

The problem of the systems can be seen as difficult to memorise due to the usage of special characters and special marks; when two letters are combined to represent an Arabic character, it gives ambiguity in differentiating the position of the combined letters for example “sh” in “sheep” with “s h” in “mis-hap”; and perhaps the worst comes when these special characters and marks as listed in the systems as mentioned previously are not listed on the normal keyboard. The writer needs to search these symbols in words such as in figure 1 which lead the typing process to become more time consuming. To insert a special character as the symbol (GeksforGeeks, 2021), the steps are:

1. From the Insert tab, click Symbol.
2. Click More Symbols.
3. Select the Special Characters tab.
4. Choose the character you want to insert, and select Insert.

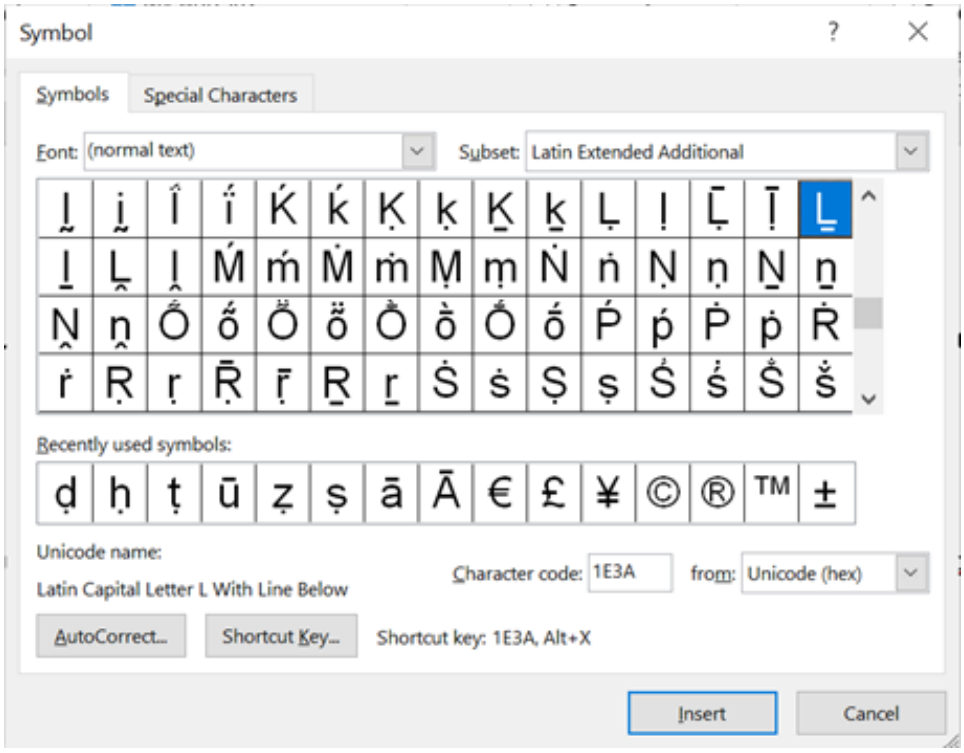

Figure 1: Some Symbols in Words Used in Romanization

1. Therefore, the research questions of this research are:
2. What is the best roman character to transliterate and transcribe the Arabic character to be used as a system in word processing?
3. How well is the proposed standardization system in facilitating typing Arabic Romanization in word processors in term of justification it is chosen?

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Research Objectives

This paper is proposing a system of typing Arabic words in Roman in a much simpler way, to facilitate the needs of the writers, and to decrease the gap of ambiguity for the systems created previously with the one that can increase the product of academic writing when dealing with Arabic romanization. The need to set a standard form of romanization in Arabic is crucial to minimize the time consumption when doing research and writing. In the matter of business for instance, time is always crucial when dealing with customers. Wrong information from wrong printed material might also lead to losses. One of the situations which connect the Arabic words and romanization can be obviously seen in the Islamic finance industry (Nurulasyikin & Hazmi, 2017). Arabic terminologies used in the promotion, product explanation, and even producing references from the varieties of book, journal, mass media and others. Some of the words might have differences of spelling in one source compared to the other.

Research Hypothesis

The hypothesis of the study is that the usage of alphabet characters on typing keyboard system in Arabic Romanization will facilitate more the needs of writers during typing Arabic romanization words.

Literature Review

Romanization, Transliteration and Transcription.

Romanization is the conversion of non-Latin writing system to the Latin character by using either transliteration or transcription, or both. It is important to master the characters pronunciation when doing transcription since it is related to the conversion of the sound into character, whereby the transliteration is the operation that representing the characters to a character (Zhiwei, 2014). The work of Buckwalter in Buckwalter Transliteration is considered as one of the methods to simplify the impediment as shown in Table 1 below by making it with the advantages of being complete, typable and displayable on common ascii terminals and printers. This transliteration is naturally being used in pedagogical situations, where there is a genuine need, distinct from orthography, to convey phonetics, phonology and morphophonology.

All of six transliteration standards are compared as follows (Scriptsource, 2012):

1. The ISO 233 (1984).
2. The American Library Association (1997) - Library of Congress (ALA-LC) built for indexing and cataloguing.
3. ArabTeX is a software package for typesetting texts which contain both the Roman and the Arabic scripts which often include transliterations of Arabic.
4. The United Nations Group of Experts on Geographical Names (UNGEGN) uses a romanization system sometimes also known as the Amended Beirut System, Variant A.
5. The Institut Géographique National (IGN) focuses on French speaking areas and therefore has created a standard more conformant with French orthography which is also known as the Amended Beirut System, Variant B.
6. The Deutsches Institut für Normung adopted the DIN 31635 standard (1982). It assigns one Latin character to one Arabic letter.

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Table 1: Transliteration Standards

Arabic	ISO 233	ALA-LC	ArabTeX	UNGEGN	IGN 1973	DIN 31635
ء	', ˌ	’	’	’		’
ا	ʾ	ā	a	ā	a, e, é, è	ā
ب	b	b	b	b	b	b
ت	t	t	t	t	t	t
ث	ṯ	th	_t	th	th	ṯ
ج	ǧ	j	g	j	dj, j	ǧ
ح	ḥ	ḥ	.h	ḫ	ḥ	ḥ
خ	ḫ	kh	_h	kh	kh	ḫ
د	d	d	d	d	d	d
ذ	ḏ	dh	_d	dh	dh	ḏ
ر	r	r	r	r	r	r
ز	z	z	z	z	z	z
س	s	s	s	s	s, ss	s
ش	š	sh	s	sh	ch	š
ص	ṣ	ṣ	.s	ṣ	ṣ, ç	ṣ
ض	ḍ	ḍ	.d	ḍ	ḍ	ḍ
ط	ṭ	ṭ	.t	ţ	ṭ	ṭ
ظ	ẓ	ẓ	.z	ẕ	ẓ	ẓ

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ع	ʿ	ʿ	`	ʿ	’, aa	ʿ
غ	g	gh	.g	gh	gh	ġ
ف	f	f	f	f	f	f
ق	q	q	q	q	q, g, gu	q
ك	k	k	k	k	k	k
ل	l	l	l	l	l	l
م	m	m	m	m	m	m
ن	n	n	n	n	n, ne	n
ه	h	h	h	h	h	h
و	w; ū	w; ū	w	w	ou	w
ي	y; ī	y; ī	y	y	i, ï, y	y
آ	ʾâ	ā, ’ā	'A	ā	â, ê	ʾā
ة	ẗ	h; t	T	h; t	h; t	h, t
ى	à	á	_A	y	y	ā
ال	ʾal	al-	al-	al-	al-	al-

Below are some of the examples in transcribing romanization with phonemic charts (MGS LangArts Department, 2017). These examples will be used in comparing the phonetic as of English with Arabic as in Table 2. The reason of making comparison with English is because of earlier research has shown that English system is the most influential for transliterate (Britser, 2004).

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Consonants

p	pen
b	back
t	tea
d	day
k	key
g	get
tʃ	church
dʒ	judge
f	fat
v	view
θ	thing
ð	this
z	zero
ʃ	ship
ʒ	pleasure
h	hot
m	more
n	nice
ŋ	ring
l	light
r	right
j	yet
w	wet
ʔ	(glottal stop) department

Vowels

ɪ	kit
e	dress
æ	trap
ɒ	lot
ʌ	strut
ʊ	foot
iː	fleece
eɪ	face
aɪ	price
ɔɪ	choice
uː	goose
əʊ	goat
aʊ	mouth
ɪə	near
eə	square
ɑː	start
ɔː	thought
ʊə	poor
ɜː	nurse
ə	about
i	happy

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u thank you
n̩ suddenly
l̩ middle
ˈ (stress mark)

From Buckwater's work idea and the phonetic list above, it shows that there are a few of the characters that share the same characters in both English and Arabic. Table 2 shows the sharing and their existence on the standard QWERTY typing keyboard which is widely used among the English users (Gecawich, 2017). QWERTY is a keyboard layout for Latin script based from the first six keys appearing on the top left letter row of the keyboard (Q W E R T Y) from left to right. In 1873, Remington bought the QWERTY design in a layout form created for the Sholes and Glidden typewrite. After the success of the Remington No. 2 (1878), it gained popularity and still in use on electronic keyboards due to inertia, the difficulty of learning a layout that differs from the currently entrenched standard, the network effect of a standard layout, with the complaint of some individuals that alternatives fail to provide very clear advantages (James, 2016).

Table 2: Sharing and non-Sharing Phoneme of English and Arabic with Proposed Romanization

Phonetic symbol as in English word example		Arabic character
ɑː	start	ا / ى
b	back	ب
t	tea	ت
θ	thing	ث
dʒ	judge	ج
		ح
		خ
d	day	د
		ذ
r	right	ر

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z	zero	ز
s	soon	س
ʃ	ship	ش
		ص
		ض
		ط
		ظ
		ع
		غ
f	fat	ف
		ق
k	key	ك
l	light	ل
m	more	م
n	nice	ن
w u	wet thank you	و
h	hot	ه
ʔ	(glottal stop)	ء

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j	yet	ي
i	happy	

Other than information listed above there are another system in Arabic writing which should be realised regarding its importance so called as diacritical mark. This mark represents the vowel sound of the consonant affected which the mark itself will be located either above or below the character, and some of the situation will have the mark on vowel و to show the meaning of plural masculine in term of grammar. For example, the word بَقَرَةٌ will be transliterated to baqaratun. This system will be found easily as written in al-Quran. The beginners of studying Arabic will be exposed to this writing system with diacritical marks too to help them familiarise with the word. After sometimes they will find Arabic is learnt without the marks anymore and they are supposed to know how to read the words without depending on them. The diacritical marks meant here are (Dia & Moustafa, 2011):

ـَ = a
ـِ = i
ـُ = u
ـً = an
ـٍ = in
ـٌ = un
ـّ = doubling the character (applied to consonant only)
ـْ = no vowel should be given to the character
* (the symbol - represents the character)

Methodology

Research Design

This study would use qualitative research to understand which characters are the best in Arabic romanization systems when using the word processor. It will involve collection, analysis and integration of qualitative data in single multiphase study (Burke, 2004).

Analysis of Data

In order to answer the first research question, the data of this study is analysed by finding the similarity within the previous transliteration systems as in table 1 and the phonetic system in English as in table 2. Both systems then will be analysed by comparing them with the characters on the typing keyboard in terms of similarity, as in image or in the other word is to see how many times the repetition occurs which match the characters on keyboard. Every similarity will be highlighted with grey colour in the column. Darker grey presents the same character will be used in “MUDA” and the lighter grey means a proposed character is needed. If there are more than one character listed in the system, only the similar character will be highlighted and not the column. Number of similarities occurs will be counted and placed in the table as in Table 3. The qualitative data analysis here includes the range of process and procedures whereby we move the qualitative data into some form of explanation, understanding or interpretation of issues we are investigating. Therefore, a proposed character will be chosen by using the concepts of;

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(i) existence of the character in the previous systems and/or phonetic in English as on the keyboard. The more the repetition is, the higher possibility the character should be proposed to be listed in the "MUDA" system; .number of similarity (repetition) will be counted

(ii) analysing the phoneme of the character from audio and video sources which can be obtained online in case of the character suggested in the previous system does not exist on the keyboard. Number of similarities will be counted as 0 (zero). This process could be done also by studying the location of characters emission as in figure 1

(iii) when proposing a character is taking place, several steps are taken into consideration with the strongest element will be chosen first and the weakest will be chosen least. These steps are suggested by this study by looking at the regular typing process which is most of typing would use small letter and followed by a few of capital letters and punctuation or symbols. The elements are as follow:

a. Single non combined character in small letter
b. Single non combined character in capital letter
c. Combination of two characters in small letter
d. Combination of two characters in capital letter
e. Single punctuation symbol
f. Combined punctuation symbols

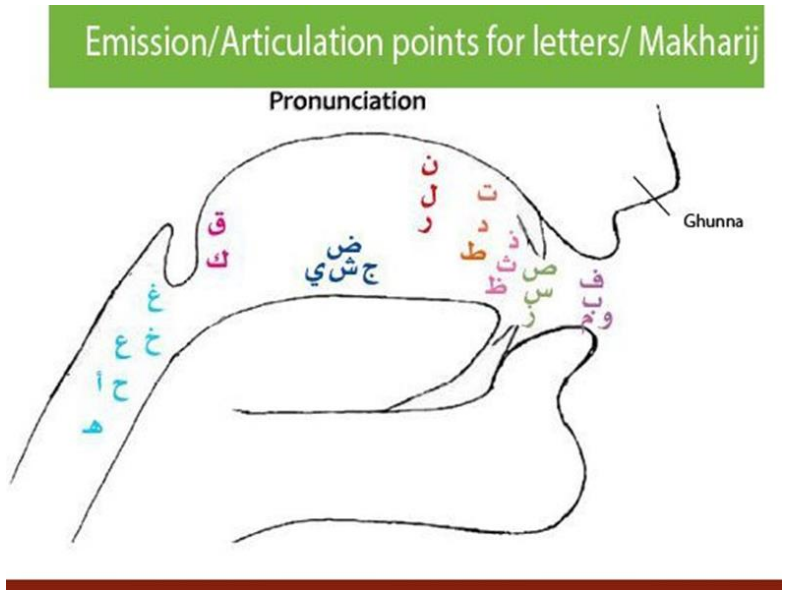

Figure 2: Emission of Arabic Characters (Subject Educator, n.d)

To answer the second research question, explanation with details will be given for every character proposed as in table 4 as the explanation regarding how well is the proposed standardization system in facilitating typing Arabic romanization in word processors in term of justification it is chosen. The final layout of the position of all characters' key will be presented in a visual finding as a figure to give a clear view how well it stands on the keyboard.

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Data Findings

Table 3: Number of Character Similarity and the Proposed Romanization

Arabic	ISO 233	ALA-LC	Arab TeX	UNG EGN	IGN 1973	DIN 31635	Phonetic symbol as in English word example	Similarity on keyboard	Proposed Romanization ("MUDA")
ء	', ˌ	’	’	’		’	ʔ (glottal stop)	5/7 (971%)	‘ ’
ا	ʾ	ā	a	ā	a, e, é, è	ā	ɑ: start	2/7 (29%)	a
ب	b	b	b	b	b	b	b back	7/7 (100%)	b
ت	t	t	t	t	t	t	t tea	7/7 (100%)	t
ث	t̲	th	_t	th	th	t̲	θ thing	3/7 (43%)	th
ج	ǧ	j	g	j	dj, j	ǧ	dʒ judge	3/7 (43%)	j
ح	ḥ	ḥ	.h	ḫ	ḥ	ḥ		0/7 (0%)	H
خ	h̲	kh	_h	kh	kh	h̲		3/7 (43%)	kh
د	d	d	d	d	d	d	d day	7/7 (100%)	d
ذ	d̲	dh	_d	dh	dh	d̲		3/7 (43%)	dz
ر	r	r	r	r	r	r	r right	7/7 (100%)	r
ز	z	z	z	z	z	z	z zero	7/7 (100%)	z
س	s	s	s	s	s, ss	s	s soon	7/7 (100%)	s
ش	š	sh	s	sh	ch	š	ʃ ship	2/7 (29%)	sh
ص	ṣ	ṣ	.s	ṣ	ṣ, ç	ṣ		0/7	S

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								(0%)	
ض	ḍ	ḍ	.d	ḍ	ḍ	ḍ		0/7 (0%)	D
ط	ṭ	ṭ	.t	ṭ	ṭ	ṭ		0/7 (0%)	T
ظ	ẓ	ẓ	.z	ẓ	ẓ	ẓ		0/7 (0%)	Z
ع	ʿ	ʿ	`	ʿ	’, aa	ʿ		4/7 (57%)	‘‘
غ	g	gh	.g	gh	gh	ġ		3/7 (43%)	gh
ف	f	f	f	f	f	f	f fat	7/7 (100%)	f
ق	q	q	q	q	q, g, gu	q		6/7 (86%)	q
ك	k	k	k	k	k	k	k key	7/7 (100%)	k
ل	l	l	l	l	l	l	l light	7/7 (100%)	l
م	m	m	m	m	m	m	m more	7/7 (100%)	m
ن	n	n	n	n	n, ne	n	n nice	7/7 (100%)	n
ه	h	h	h	h	h	h	h hot	7/7 (100%)	h
و	w; ū	w; ū	w	w	ou	w	w wet u thank you	6/7 (86%) 1/7 (14%)	w(consonant) u(vowel)
ي	y; ī	y; ī	y	y	i, ï, y	y	j yet i happy	6/7 (86%) 2/7 (29%)	y(consonant) i(vowel)
آ	ʾâ	ā, ’ā	'A	ā	â, ê	ʾā	ɑ: start (longer)	1/7 (14%)	aa

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ة	ẗ	h; t	T	h; t	h; t	h, t	h hot t tea	5/7 (71%) 5/7 (71%)	h t
ى	à	á	_A	y	y	ā	ɑ: start	3/7 (43%)	a
ال	ʾal	al-	al-	al-	al-	al-	ɑ: start l light	5.5/7 (79%)	al

From the table above, there are 33 Arabic characters been analysed in this study. 23 characters shares the phoneme in both English and Arabic romanization system, with two of them distinctively written with another phonetic symbol to differentiate between the consonant of "w" and the vowel of "u" for "و", and the consonant of "j" and the vowel of "i" for "ي" as in the English words example.

Characters that represent 100% of all system (b, t, d, r, z, s, f, k, l, m, n, h) will definitely to be proposed in "MUDA" system and it will be followed by other characters with lower percentage (', a, th, j, kh, dz, sh, ', gh, q, w, u, y, i, al) . Meanwhile, there are 4 characters (dh, ' ', 'A, y) that use keys on keyboard but this study rejects them due to the following reasons:

- dh which represent ذ should be revised in term of phoneme and location of emission.' and ' both keys which represent ع lack of visual similarity which could be found on the keyboard. The redundance of key ' in ء and ع might lead to ambiguity in using the key.
- 'A which represent آ with the key ' in ع might lead to ambiguity in using the key.
- y which represent ى does not suit to the phoneme of the character because of this character is similar to ا in term of vowel sound and only situated at the end of a word.
- Further explanation regarding this rejection could be found in in the justification section in Table 4.
- Other than the mentioned characters as above which has the similarity at any percentage, there are 5 Arabic alphabets (ح، ص، ض، ط، ظ) do not match with any earlier systems used them have no similarity at all with any character key on the keyboard. Therefore, this study will propose character in transliterating and transcribing the Arabic alphabets.

Table 4: Justification of Choosing the Proposed Character

Arabic	Proposed Romanization ("MUDA")	Justification of Choosing the Proposed Character
ء	' '	The shape of 'and 'shares the shape of ء which look like a small c and flipped c. ' represent ء before the vowel and ' after the vowel to suit the auto typing process
ا	a	Existed in the previous standards

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ب	b	Existed in the previous standards
ت	t	Existed in the previous standards
ث	th	Existed in the previous standards
ج	j	Existed in the previous standards
ح	H	ح and ه are sound alike but with bigger, deeper and harder sound of h. Therefore h with capital form H would give a visual message of similarity but bigger or perhaps more dominant
خ	kh	Existed in the previous standards
د	d	Existed in the previous standards
ذ	dz	Most of the previous standards represent dh as the Romanization. After listening carefully to the pronunciation of this character it shows a bit of buzzing alike sound (Al-Ansar Center, 2019). This makes the combination of dz is much better compared to dh since h sound is lack of the buzzing sound. The buzzing sound in Arabic represented the ز (z) Figure 3 shows the position of articulation of ذ and ز as they are close to each other. This could help to give an understanding that they could share the almost same character of phoneme. Therefore, dz once again is considered the better option rather than dh.

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		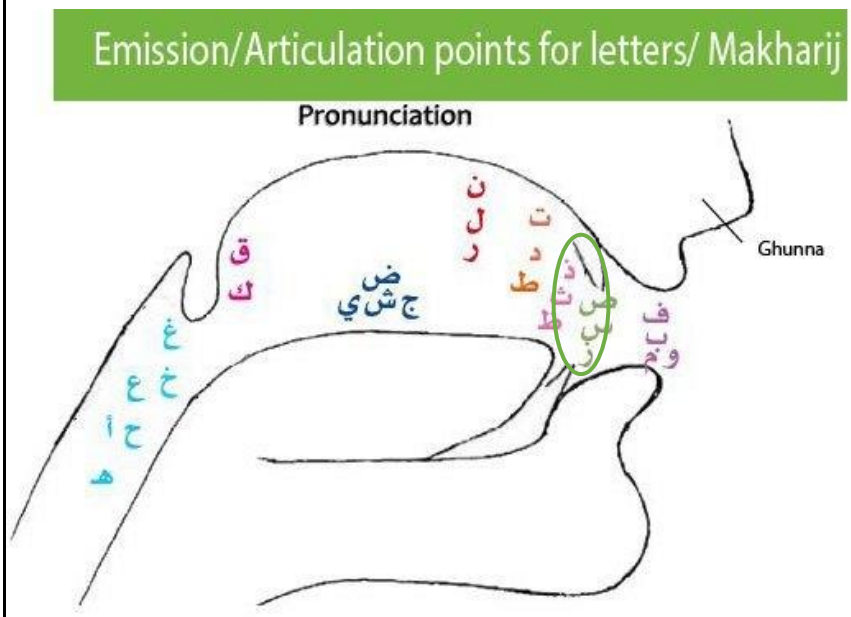
		Figure 3: The Position of Articulation of ذ and ز
ر	r	Existed in the previous standards
ز	z	Existed in the previous standards
س	s	Existed in the previous standards
ش	sh	Existed in the previous standards
ص	S	ص and س are sound alike with bigger, deeper and harder sound of s. therefore s with capital form S would give a visual message of similarity but bigger or perhaps more dominant
ض	D	ض and د are sound alike with bigger, deeper and harder sound of d. therefore d with capital form D would give a visual message of similarity but bigger or perhaps more dominant
ط	T	ط and ت are sound alike with bigger, deeper and harder sound of t. therefore t with capital form T would give a visual message of similarity but bigger or perhaps more dominant
ظ	Z	ظ and ز are sound alike with bigger, deeper and harder sound of z. therefore z with capital form Z would give a visual message of similarity but bigger or perhaps more dominant
ع	“ ”	The shape of “ and ” shares the shape of ع which look like two c’s stacked on each other and flipped. “ represent ع before the vowel and ” after the vowel to suit the auto typing process

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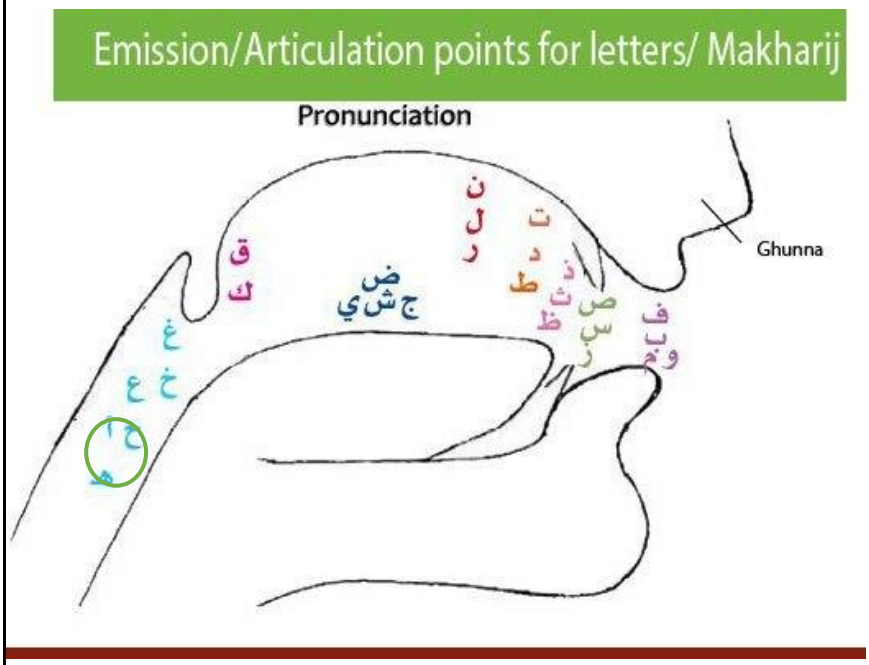
		As explained previously, the shape of ‘ shares the shape of ء which look like a small c. Meanwhile ع has two (2) times shape of c or ‘, above and below in stacked form. In this case “ could represent the number of c shape. Figure 4 show the position of articulation of ء and ع as they are close to each other. This could help to give an understanding that they could share the almost same character of phoneme. Therefore, “ once again is considered the better option rather than ‘. Please bear in mind that the ء is located on the character of ا in this figure.  **Figure 4: Emission of Arabic Character of ء and ع**
غ	gh	Existed in the previous standards
ف	f	Existed in the previous standards
ق	q	Existed in the previous standards
ك	k	Existed in the previous standards
ل	l	Existed in the previous standards
م	m	Existed in the previous standards
ن	n	Existed in the previous standards
ه	h	Existed in the previous standards
و	w(consonant) u(vowel)	Existed in the previous standards

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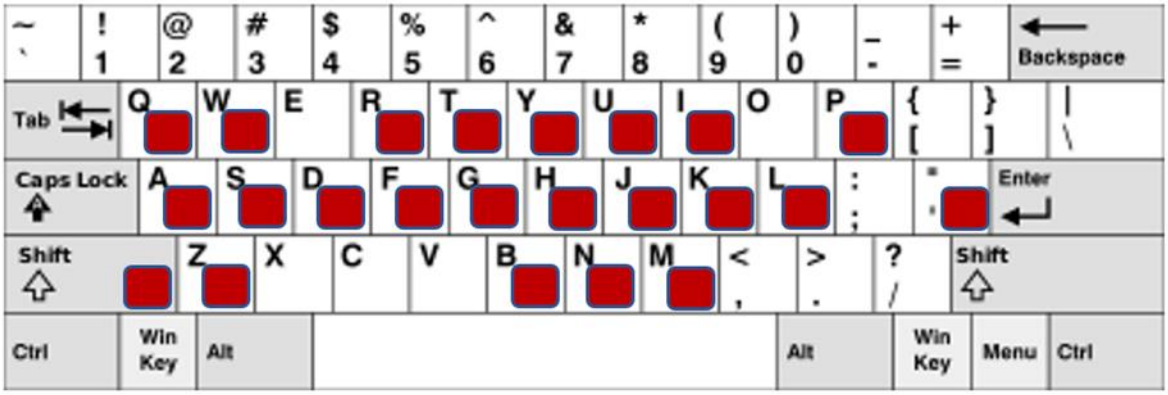
ي	y(consonant) i(vowel)	Existed in the previous standards
آ	aa	This is the phoneme of longer alif. By adding another vowel of a could represent the longer sound of a
ة	h t	Existed in the previous standards
ى	a	This character shares the phoneme as in ا. It is used at the end of word. Therefore, it shares the same Romanization
ال	al	Existed in the previous standards

The figure below shows the location of characters in "MUDA" system used on the keyboard which has been indicated with red boxes. There are 23 keys will be used in 3 ways as follow:

Single character typing excluding Shift
Shift + character (T,S,D,Z,")
Combining character (th,sh,gh,kh,dz)

This explains that no more complicated system of typing process will occur. Hence, using "MUDA" will increase the speed of typing Arabic romanization. This finding not only support Transparent Language (2014) claim that romanization is a system to simplify the foreign language learning, but also in completing tasks among writers.

Figure 4: Location of Involved Keys Used in "MUDA" System



Examples of Using "MUDA" System
This study would like to share an example how to use "MUDA" system in romanization of the names as below:

أسماؤنا نور العاشقين بنت مودا وحزمي بن دحلان

'asmaa'una nuur al-"aashiqiin bint muudaa wa Hazmii bin daHlaan

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Conclusion

Since the previous suggested Arabic romanization systems still have the characters that are not listed in the keyboard, it is much preferable to have a simpler system by using the characters on the keyboard that will simplify the typing process by pressing only one (1) key instead of having four steps (GeksforGeeks, 2021) of inserting only one (1) character by clicking symbol from the Insert tab, clicking more symbols, selecting the Special Characters tab, choosing the character you want to insert, and selecting Insert.

With this simplified system, people around the world can close the gap of ambiguity during writing or giving information and typing while searching for information without needing to find a word with multiple ways of spelling and writing.

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