INFORMATION TECHNOLOGY IN ARABIC LINGUISTIC – ARABIC READ AND WRITE

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Abstract - In this paper, authors present a desktop application called as "Arabic Read And Write", developed by students that helps the user to learn Arabic. Most of the similar applications available in the market are either web application or commercial, which means, they provide none or limited functionalities for free or cannot be downloaded and practiced offline. Our application breaks this restriction and provides all of the features, free of cost and offline access. This is a major advantage. As this application is computer based it overrides the traditional method of slate-pencil teaching, which also implements the paperless and pollution free environment. There are several advantages of this application those are explained detail in the paper chapters. One of the future works of this application is to develop another application that helps to develop command over Arabic vocabulary. This application will also serve as a platform for others to develop application for other languages also. The authors have no objection in making this project as open source and hence can be improved by public. Apart from linguistic and social advantages, the application has many computing resource advantage, one of them being less size of the installer file. All of the properties, advantages, uses and future work of this application explained in the following sections make this as a promising start.

Keywords - Computational linguistics, Language tools, Arabic language, Information Technology.

I. INTRODUCTION

Influence of computer in the life of humans is unprecedented. Information technology is playing vital role in all aspects under human imagination. Almost 60% of the 1.6 Billion Muslims in the world (Approximately 1.02 Billion) do not know to speak Arabic. This paper describes a desktop application that provides free Arabic learning access to the 1.02 Billion non Arabic speaking Muslims. The desktop application is named as "Arabic Read And Write" and it helps the user to learn Arabic language. This application is presented in details. The second section of the paper presents the details and the features of the application. The third section explains the advantage, future work and applications of the Arabic Read and Write. The fourth and final section concludes the paper.

II. DETAILS AND FEATUREDSOF ARABIC READ AND WRITE

Arabic Read And Write application is developed in VC++ 2013, MFC. The application has several dialogs that are explained in the following subsections.

2.1. Application Home Dialog

The screens shot of Home Dialog is shown in fig. 1. As illustrated in the Fig.1, the home page has a Title, list of Lessons and Exercises. Currently 11 lessons and corresponding 11 exercises are completed. Each Lesson is focused on a single topic. Corresponding Exercise for the lesson provide opportunities for the user to evaluate the acquired skills in that Lesson.The content of each lesson is designed in such way as to fulfill the prerequisite requirements for the lesson. For example Lesson 1 teaches the alphabets in Arabic language, Lesson 6, explains the starting form of the alphabets discussed in lesson 1.

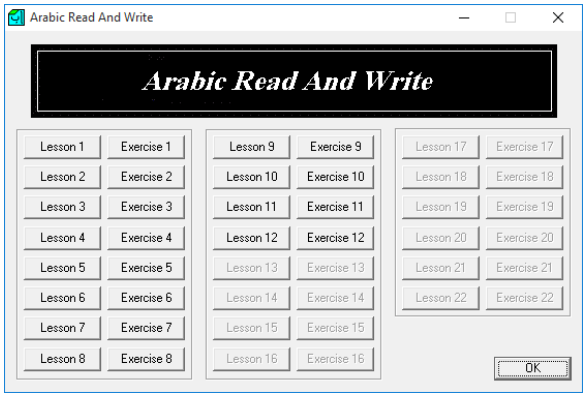

Fig.1. Home Page of Arabic Read And Write

2.2 Sample Lesson Dialog

Invoking any of the lessons will open the corresponding lesson dialog. Fig. 2 shows the dialog of lesson 1(Titled as Lesson 1 – Alphabets). The Lesson 1 dialog (As in Fig. 2) shows all the alphabets in the Arabic language, along with their names in English. On clicking the image of an Alphabet, the pronunciation of the alphabet will be played in the system speaker. The pronunciation of all the alphabets are pre-recorded and stored in the system. These audio files are just played by the application when the user clicks on the alphabet. By this, the user not only is able to read the Alphabets along with pictures, but also be able to listen to the pronunciation of the alphabet. This methodology is followed in all the lesson dialogs that are complete up to lesson 11. To provide more feel for the further lessons, screen shot of Lesson 9 is shown in Fig. 3.

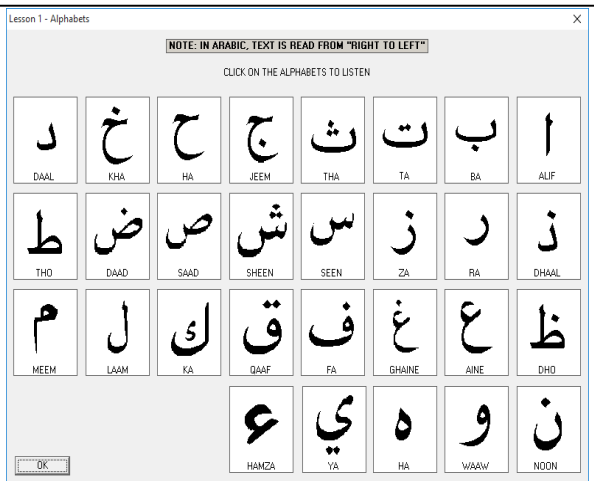

Fig.2. Lesson 1 – Alphabets Dialog

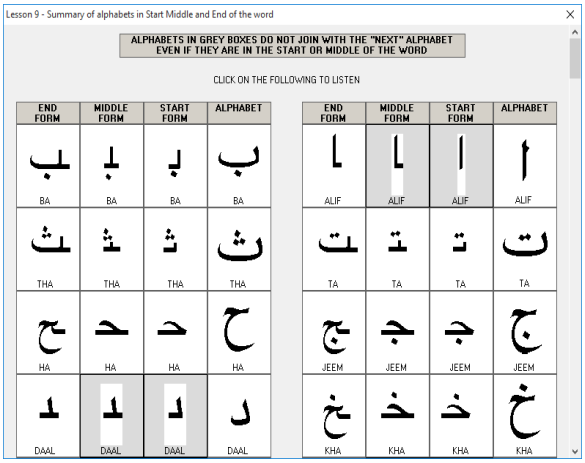

Fig.3. Lesson 9 – Summary of alphabets in Start Middle and End of the word Dialog

2.3 Sample Exercise Dialog (Exercise 1 - Alphabets)

Fig. 4 illustrates the Exercise 1 dialog. The major differences between this dialog and Lesson 1 dialog are

a. The alphabets in Exercise 1 dialog are not in order as in Lesson 1. The alphabets are shuffled.
b. The names of the alphabets are not displayed in the Exercise 1 dialog. The user has to identify the alphabets himself.

Similar to Lesson1, if the user clicks on an alphabet in Exercise 1, the alphabet will be played in the speaker and user can verify, whether he had identified the alphabet correctly. All of the exercise follows the same pattern of shuffling and name hiding. The corresponding exercise (Exercise 9) for the lesson (Lesson 9) in Fig. 3 is shown in Fig. 5.

2.4 List of Lessons Completed

The lessons start from single alphabets in Arabic.
Proceeds to Fatha, Kasra, Dhamma, continues to Start, Middle and End form of alphabets, and so on. The title and contents of Lessons completed (Up to lesson 11) is in Table 1. Contents of Table 1 also apply to exercises 1 to 11.

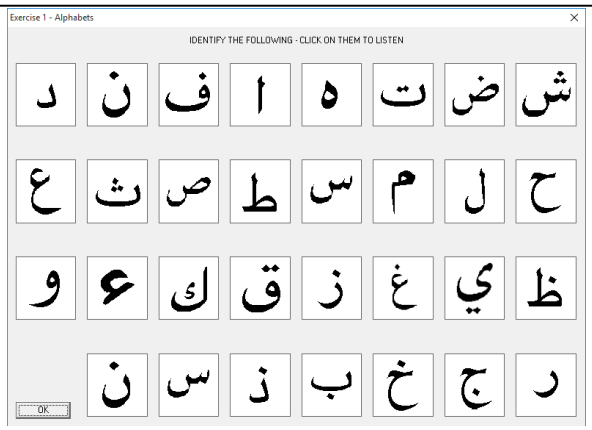

Fig.4. Exercise 1 – Alphabets Dialog

Fig.5. Exercise 9 – Summary of alphabets in Start Middle and End of the word Dialog

Table 1: Title and Contents of Lesson Dialogs

No	Title and Contents
1	Alphabets
2	Alphabets with Fatha
3	Alphabets with Kasra
4	Alphabets with Dhamma
5	Summary of alphabets with Fatha, Kasra and Dhamma
6	Alphabets in Start of the word
7	Alphabets in Middle of the word
8	Alphabets in End of the word
9	Summary of Alphabets in Start, Middle and End of the word
10	Summary of Alphabets in Start, Middle and End of the word with Fatha, Kasra and Dhamma
11	Joining Alphabets

2.5 Installer For The Arabic Read And Write

The application executable file along with the pre-recorded Audio files is compressed into a single Installer file using the Install Creator application. The packed, single installer file can be used to install the application in any system. Fig. 6, is a screen shot of the installation process, of the Arabic Read And Write. The version shown in the Installer is v11.11 meaning there are 11 Lessons and 11 Exercises in the Arabic Read And Write application.

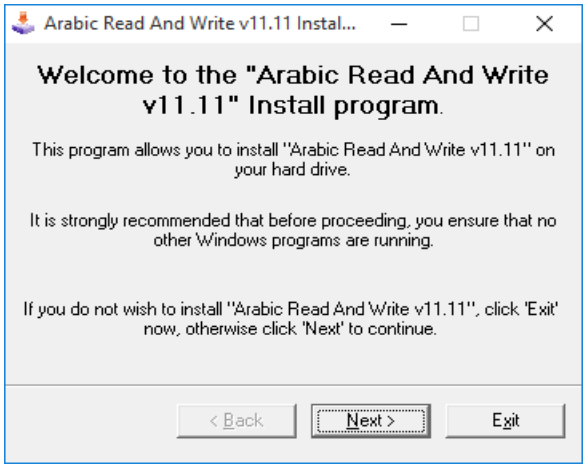

Fig. 6. Arabic Read And Write Application Installation

III. ADVANTAGES, FUTURE WORK AND APPLICAIONS OF ARABIC READ AND WRITE

The Arabic Read And Write has several advantages and a good scope for future development. The exhaustive list of advantages, future development possibilities and applications is given below.

3.1 General Future WorkAnd Advantages

a. One of the future work is to cover all the aspects of Arabic language in the context of reading and writing
b. Extend to another application that can be helpful to get a good command over the vocabulary of the Arabic language along with their meanings. Once the user know to read Arabic and to understand the meanings of the words, then the user should be able to understand the language.
c. Converted to a Mobile app using the available resources, such as pictures of alphabets and audio files.
d. Copied to other languages such as Tamil, Sanskrit etc.

3.2 Commercial Perspective

a. Free of cost, for downloading, installing, learning and distributing.
b. Override the paper-pencil based teaching, thus implementing the paper free environment, which helps to save natural and financial resources.
c. If a similar application (free of cost) is built to develop the vocabulary in English, that application can be used by Millions of students around the world to prepare for exams such as TOEFL, GRE, and IELTS etc. The overall student expenditure in Millions of Dollars will be saved.

3.3 Educational Perspective

a. Since the application was developed by students. they not only refresh the Arabic language, but also the programming techniques of VC++ and MFC
b. The application is very simple and can be used even by children without the aid of any teacher. This help in self-learning.

3.4System Perspective

a. The installer is 1.2MB which can be easily downloaded from and existing Internet connection
b. The size of the installed folder is 12.7MB. Far less compared to the capacity of the hard disk available in the market now days.
c. RAM used by the application on is 3.4 MB. Again this is much less compared to the RAM available in recent Systems
d. Most of the current applications to teach Arabic are web based. They require a live internet connection to function, every time the user needs to continue or revise. In our case, only downloading the installer needs internet connection.
e. The authors are generous enough, to make this application as an open source. Once the application is complete with all features, the source code and the installer will be made accessible through the Internet

3.5 Social Perspective

a. The users of the application are not restricted to children. Even the elderly who do not feel comfortable to attend the classes with children can use this application.
b. As already mentioned, there are about 1.2 Billion Muslims with non-Arabic background. Thus this application will have a huge mass of audiences.
c. Once a user is able to read Arabic then he will be able to read and recite the Quran which is fundamental requirement, of the mass audience mentioned previously.

3.6 Specific Future Work of the Application

Though a lot of future work was proposed, a definite target title and contents for the lessons 12 to 25 is mentioned in Table 2. Target for the corresponding exercises are a same as in Table 2.

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CONCLUSION

The desktop application developed by students was explained in the paper. The application is named as “Arabic Read And Write.” Details of the application were in section two. The section three elaborated the advantages, future work and applications. The students will continue working on application and finish all the 25 lessons and exercises. Once the application is complete, the user, with practice should be able to read and write Arabic fluently. All of the

information provided so far makes the application as a promising start.

Table 2. Target Contents For Lessons 12 to 25

No	Title and Contents
12	Words with Fatha, Kasra and Dhamma
13	Alphabets with Fathahtain
14	Alphabets with Kasrahtain
15	Alphabets with Dhammahtain
16	Sukoon with Fatha
17	Sukoon with Kasra
18	Sukoon with Dhamma
19	Madd with Alif
20	Madd with Yaa
21	Madd with Waw
22	Madd with plural Waw
23	Shaddahwith Fatha
24	Shaddahwith Kasra
25	Shaddahwith Dhamma
25	Some extra rules (example, Usage of the definite article AL)

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