User Friendly Pashto Text Editor

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Abstract— *Thousands of languages are spoken around the world; each language has its own importance in their community. Every community is trying to promote their language via writing books, newspapers, and poetry in their language. Pashto is one of the main languages of Pakistan, Afghanistan and about 60 million of Pashto speakers are dispersed around the world. Even Pashto is national and official language of Afghanistan. The importance of the Pashto language leads to introduce an application for Pashto language, just like a number of applications available for Urdu, English and even for all major languages of the world. In this paper we introduced an offline Pashto Editor "PashApp" for writing Pashto language and provide mark-ups facilities during writings after analyzing the drawbacks or the services not available in online or offline Pashto editors. We developed PashApp in Java. The application is analyzed by comparative analysis using the available Pashto editors and analyzed different features provided by PashApp using task based questionnaire. The study includes 20 Pashto speaking volunteers by simple random sampling technique. The comparative analysis of different available editors lead PashApp which is analyzed using task based questionnaire. The results show high user satisfactions for the features provided in the developed PashApp for Pashto language. The application is an offline editor available for free and covers all basic operations for writings of a language.*

Kaywords— PashApp, Pashto Text Editor, Script Editors, Comparison.

I. INTRODUCTION

A number of languages are spoken around the world, and every community is trying to promote their language by written scripts that show the culture and civilization of the community. Pashto is a prominent language of Pakistan and Afghanistan and about 60 million people speak Pashto around the world. Historically inhabited in Afghanistan and Khyber PakhtunKhwa, Federally Administered Tribal Areas (FATA), Baluchistan and Iran. The Pashto language is prevailing rapidly because of its rich literature. The first written records of Pashto are believed to date from the sixteenth century and consist of an account of Shekh Mali's conquest of Swat. Pashto has an extensive written tradition. There are a number of classic Pashtun poets, most notably Khushal Khan Khattak (also known as Khushāl Bābā), considered as the national poet of Afghanistan, and a known Pashto language poet in Pakistan. In this century, there has been a rapid expansion of writings in Pashto such as in journalism and other modern artistic work (genres). Pashto writings and writers play vital role in promoting Pashto language [1,2].

In this digital world, every language writings have been facilitating introducing new sophisticated software tools. Similarly, we need to have an application tool that facilitates Pashto writings. In this study we are introducing a Pashto offline editor "PashApp" the support Pashto writings and editing of Pashto scripts in a standard way. The main features of the new Pashto editor are; easy scripting, follow standard nomenclature, sounds, symbols and user friendly interfaces. Scripting style of Pashto is like Arabic and is written from right to left unlike English. The basic character set of Pashto language is:

II.   RELATED WORKS

2.1 InPage

InPage is a word processor and page layout software for languages such as Urdu, Persian, Pashto and Arabic under Windows operating system, which was first developed in 1994 [2]. It is primarily used for creating pages in the language of Urdu, using the Nasta`līq ('hanging' calligraphic) style of Arabic scripts. InPage is considered as a de-facto standard tool for publishing Urdu scripts. InPage is widely used on PCs where a user wishes to create their documents in Urdu. The main features are; one can write in many languages, the page border are standard level, the words are written is also counted and many more.
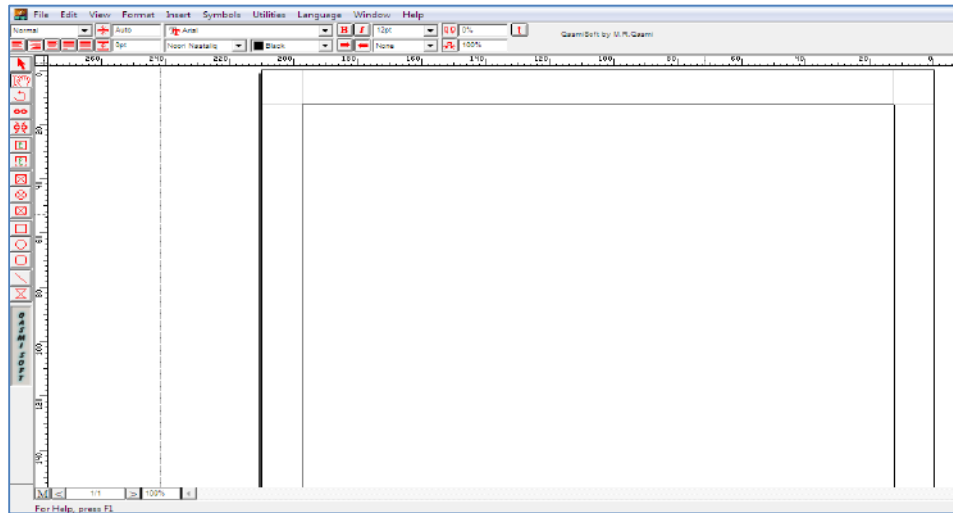

Fig.1: Main interface of InPage

2.1.1 Limitation in Inpage

The use of inpage is very difficult and especially for uneducated people. Inpage need to specialized training to use. inpage is not specific to Pashto language so first you need to toggle the language and toggle the language is difficult, it need five steps to toggle language from Urdu to Pashto. These five steps are not known to everyone. There are a lot of people they haven't known can Pashto written on inpage.

2.2 Online Pashto Editors

We have many online text editors which are specific for Pashto editing [3]. Almost all entire online text editors fail to fulfill the user requirements, provide only writing facilities.
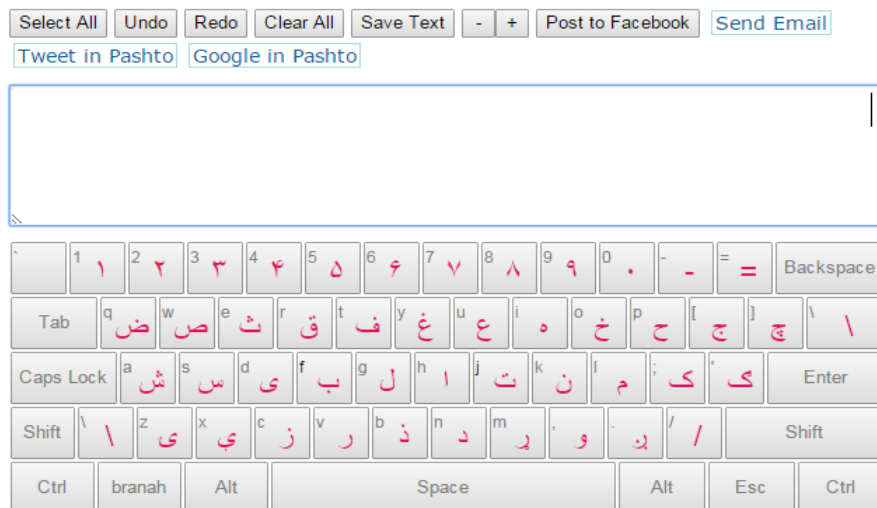

Fig.2: An online Pashto Text Editor

2.2.1 Limitation in online Pashto text editor
There are few problems related to online editors, e.g. Most of the Pashto speaking regions are hilly and remote areas where internet in not available (if available it's very slow because of old dial up connections), the online Pashto editors are very simple and not provide some of the main features like text markup etc.

III.   TECHNIQUE FOR KEYBOARD LAYOUT ANALYSIS

English alphabets	Our analysis	Keyboard 1 suggested	Keyboard 2 suggested	Keyboard 3 Final Keyboard
A	ا , ع	ښ , ڼ	ه	ا
B	ب	ڈ	ب	ب
C	ث , ج , ق , ک	ز , ژ	ع	ث , ج
D	د , ډ	ټ , ئ	د , ژ	د , ډ
E	ي , ې	ث	ي	ي , ې
F	پ , ف	پ , ب	ا , ف	ق , ف
G	غ , گ	ل	ه , گ	گ , ږ

H	ه , غ , ح	ا	غ , ی	ه , ح
I	ی , ا , غ	ه	ح , ک	ئ , ی
J	غ , ج	ت , ت	ع , ق	ج , ز
K	ق , ک , غ	ن , ن	ر , ک	ک , ک
L	ل	ه , م	ل	ل
M	م	و , ب	م	م
N	ن , ن	ه , ن	ن	ن , ن
O	و	ح , خ	و	و
P	ف , ب	خ	ث , پ	پ
Q	ق , ک	ه , ض	ج	ق
R	ل , ر	ق	ل , ر	ل , ر
S	ئ , ض , س	ی , ئی	ض , س	ث , س
T	ت , ت , ط	ف	ت , ت	ت , ت
U	غ , ع	ع	ع	غ , ع
V	و	ر	ط	خ , ح

w	و	ص	صں	و
x	ظ ، ط ، ض ، ذ ، ز	ی ، ط	ش	غ ، نں
y	ی	غ	ئ	ی
z	ظ ، ط ، ض ، ز ، ذ	ظ ، ط	ز ، ذ	ز ، ذ
؛		ک		
،		گ		
!		ج		ظ ، ط
]		غ		ص ، ض

IV.   COMPARATIVE ANALYSIS OF PROPOSED AND EXISTING SYSTEM

All those features available in PashApp which is beneficial for different users to write Pashto are comparing with the existing systems like online Pashto text editor which is very simple feature wise. While the other InPage is specific for Urdu not for Pashto but possible to write Pashto. In analysis its clearly identify our proposed system is much better than other.

In table 1 comparison of existing system and proposed system is given

Table.1: Comparison of existing system

Characteristics	Pashto text editor (PashApp)	Online Pashto text Editor	InPage
Specific for Pashto	Yes	Yes	No
Save file	Yes	No	Yes
Image browsing	Yes	No	Yes
Text alignment	Yes	No	Yes
Searching a specific word	Yes	No	No
Iconize tool bar	Yes	No	No
Undo redo words	Yes	No	Yes
Font size	Yes	No	Yes
Colouring	Yes	No	Yes
Image of Keyboard	Yes	No	No
Easy to use	Yes	Yes	No
Easily availability	Yes	No	Yes
Fulfil user requirement	Yes	No	No

V.   ADVANTAGES AND OBJECTIVES OF PROPOSED MODEL/APPLICATION

The application is specific for only Pashto language with special keyboard after the analysis of other Pashto and Urdu keyboard comparison. There is no need for specialized training to learn how to work and user friendly interface (easy to use).the Pashto text editor is almost fulfill the requirement of user. The application is easily available in the market and as will on internet .

- The creation of simple and easy application software
- The creation of easy to use interface
- This software will help publishers to publish books, magazines, and newspapers in Pashto language
- To edit and format text in different markups, i.e., colors, fonts etc.
- Although default writing style is from right to left but

it will allow user to choose

- whether to write Pashto script from left to right (if user comfortable with it)

VI.   EXPERIMENTAL SETUP

6. PashApp Evaluation

The worth, reliability and significance of a research study can be analyzed by choosing a suitable evaluation procedure based on some criteria. Evaluation is one of the substantial steps of research process [7]. The selection of evaluation technique depends on the nature of the research study. The study evaluates the Learn ability, Understand ability and Effectiveness of Pashto text editor (PashApp) by categorizing PashApp features, as briefly described in table 2.

Table.2: PashApp Features and its Description

Features	PashApp Features description
Learn ability	Learn ability is defined as the ease and speed with which the users get familiar with the use of a new product. With high learn ability, users can intuitively learn to use a product without training or manuals. Here it means to analyze the features of the PashApp for the easiness with which the user learn the use of PashApp.
Understand ability	Understand ability can be defined as the capability of being understood and comprehensible. To analyze the PashApp as easy to understand without any special training.
Effectiveness	Effectiveness can be defined as the ability of a product to produce the intended results easily. The features of PashApp are rated in different categories to analyze the effectiveness of different features.

This study is evaluated by using questionnaire based control experiment. In questionnaire based control experiments the participants are asked to execute a number of tasks based experiments on functional prototype of PashApp and fill the feature based questionnaire [4].

6.1 Participant Sampling

Sampling is the process of selecting individuals from the accessible population which are the representatives of entire population and are unbiased. Accessible population means individuals within reach in the existent resources, especially time and cost.

Target Population: The individuals how have Pashto native speakers they are properly Pashto speak and write and they already familiar with different Pashto editor [13].

Accessible Population: The individuals from different educational institutions around the capital and Khyber

Pakhtunkhwa which have speaks and write Pashto it make up our accessible population.

Sampling: The study considers the simple random sampling technique, where each individual of the population have equal chance of being selected as a sample. To evaluate the posted research statement with real users on applying the functional prototype, the study includes 20 volunteer participants. Asking the users to fill the questionnaire using Pashto editor "PashApp" for the analysis.

6.2 Participants

The study included 20 volunteers (16 male and 4 female), selected from the population by applying simple random sampling technique and the prototype is presented to them for evaluation. The participant's demographics in table 3 are summarized on the bases of how often they use Pashto editor.

Table.3: Participant's Demographics

Used of Pashto Editors	Male 80%	Female 20%
Mostly	49%	13%
Sometime	19%	6%
Rarely	12%	1%

6.3 Survey Design

To evaluate the study we choose the control experiment evaluation technique based on survey or questionnaire. Quantitative research methods are useful to identify relationships among variables, measure and analyze using statistical techniques. After studying numerous systems [6] conclude that 78% of evaluation is based on surveys. In surveys, questionnaire is used to collect the data using functional prototype over sample of real users selected from population and generalize the results to the whole population. Questionnaire used five-point Liker scale which is commonly used in questionnaires, and is the most widely used scale in survey research [5, 4,8,9,10,11].

Five-point Liker Scale
5. Strongly Agree 4. Agree 3. Neutral 2. Disagree 1.

Strongly Disagree

6.4 Result Analysis & Discussion

According to the experimental setup, the task based control experimentation is performed on the functional prototype using questionnaire. In this section we analyze different features of Pashto text editor PashApp. Learning and Understanding features are of greatest importance to evaluate how much the PASHAPP present the functionality according to the user's requirement. The user response relatively weak results for Searching Mechanism (SM), Image browsing (IB) while rest of the features represents encouraging results features like Icon understand ability (IU) , Keyboard layout (KL), Overall functionalities (OF) and Label readability and understand ability[12,13,14]. The figure 3 shows the functionalities rate by users.
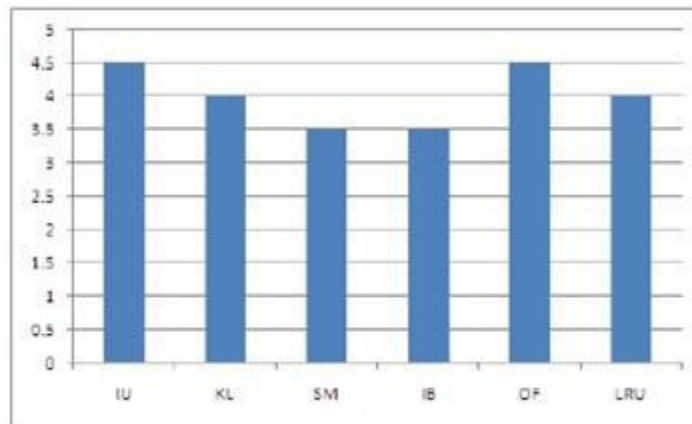

Fig.1: PASHAPP features (Learning and understanding) evaluation

Rate the features of PashApp are of greatest importance to evaluate how much the PASHAPP present the functionality according to the user's requirement. The user response relatively weak result for Color distinction (CD) while rest of the features represents encouraging results features like Color visibility (CV), Icon distinction & visibility (IDV) and Overall layout (OL) The figure 4 shows the functionalities rate by users.
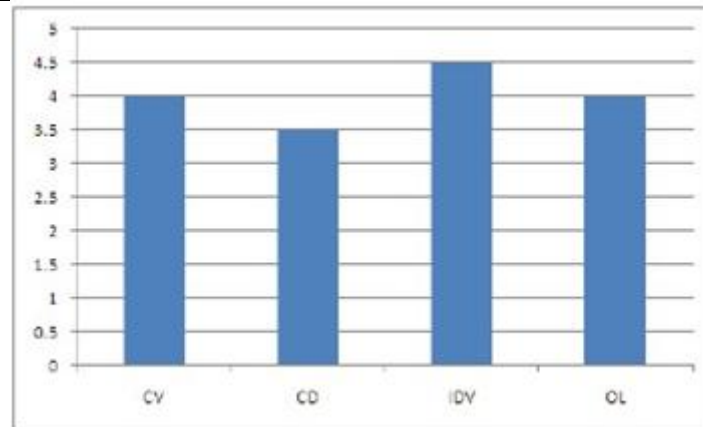
Fig.2: Rate the features of PASHAPP

VII.   CONCLUSION

This article introduced a new application for Pashto writing which performance and features are evaluated. And also comparative analysis with the existing system. The experimental setup section contains the evaluation technique applied, participant demographics, and questionnaire. The last section discussed the results of PashApp, include abstract user's response. The study found that in column charts showed the promising results for all PashApp features up to user satisfaction level as compare to bar charts. In the article is a comprehensive analysis of different keyboards which provide the easy keyboard to user to remember the key and easily used.

VIII.   FUTURE WORK

The study can be extended in different dimensions as briefly discussed below;

8.1 Localization: Localization is first important feature of PashApp to enhance in future. PashApp is software which specific for Pashto text editing so everything is written in Pashto is called localization. For example, the name of menu, menu items etc are written in Pashto. It is very important because in Pakistan Khyber PakhtunKhwa (KPK), Federally Administered Tribal Areas (FATA), and Baluchistan and in Afghanistan the literacy Level is very low. Less number of people understands English so PashApp is less useful for them, if localization is not done.

8.2 Multilanguage: Multilanguage is Second important Feature of PashApp. We want to interact the simplicity and user friendliness while enhancing its capabilities like InPage. PashApp is Specific for Pashto but we want to embed many languages like:

- Urdu

- Sindhi

- Arabic

- Persian

- Kashmiri

- English

Because generic use for everyone

8.3 Keyboard layout setting: In PashApp keyboard layout setting is another future enhancement.
In which user set keyboard layout and keys setting according to their own preferences and choice.
And Mobile Interface [11]

8.4 Different fonts styles: In PoshApp font's style is an important future enhancement. In future we embed fonts in different styles (different Pashto characters) like.

- LateefiPashtoLSU
- KitabiPashtoLSU
- NargisiPashtoLSU
- SarmastPashtoLSU

These are all different font styles in Pashto which may feature in future enhancements.

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