URDU MASTER

گورنمنٹ اسلامیہ کالج سول لائنز

SESSION: 2018 -2022; GROUP ID: G-03

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A DOCUMENTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE DEGREE OF BS HONOURS IN INFORMATION TECHNOLOGY FROM
DEPARTMENT OF THE COMPUTER SCIENCE,
GOVT. ISLAMIA GRADUATE COLLEGE, CIVIL LINES, LAHORE
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CERTIFICATE

This is to certify that Hafiz Usama Maqsood (103 / 029007), Moiz Ajmal (151 / 029013) and Muhammad Ahsan Javaid (173 / 029014) are the members of Group-03. They have worked on and have completed their software project “URDU MASTER” at Govt. Islamia Graduate College, Civil Lines, Lahore affiliated with the University Of The Punjab, Lahore in the fulfilment of the requirements for the degree of BS Information Technology under my guidance and supervision. By my opinion, it is satisfactory, up to date, and fulfils the requirements of BS Information Technology.

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ACKNOWLEDGEMENT

A project like this one is never the result of a single person's efforts. The contribution of many people in different ways has made it possible.

We would like to thank ALLAH Almighty, who is the most beneficent, merciful, and blessed us with “Holy Prophet Hazrat MUHAMMAD (S.A.W.W)”. We are thankful to ALLAH Almighty, who blessed us with sound health, kind parents, talented teachers, and intellectual efficiency to complete this project.

It's an honour for us to offer our heartfelt gratitude to our ever-loving supervisor, Mian Muhammad Munir-Ud-Din, Head of Department of Computer Science at Govt. Islamia Graduate College, Civil Lines, Lahore. He helped us to make this project possible. His support, constructive criticism, encouragement, valuable comments, suggestions, timely help throughout the project, and many innovative ideas as well as his pain-taking effort in proofreading the drafts, are greatly appreciated. Indeed, without his guidance, we would not be able to put the topic together.

Last but not least, we would like to thank our loving parents for their unconditional support, both financially and emotionally throughout our degree. In particular, the patience and understanding shown by our families during the BS-Honors years are greatly appreciated.

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ABSTRACT

Transliteration and word processing in Urdu is becoming under limelight in the last decade. Though there has been an immense addition of word processing features in contemporary word processors for English, but as far as Urdu word processing is concerned, the researchers are seen mostly at the side of finding single aspect resolutions or optimization of Urdu language processing problems but tactlessly they give their integration (as one single text editing solution) a very less significance.

Integrated solutions for the fulfillment of modern Urdu content editing needs are found to be very fewer and feeble at present. Because of having no compact word processing solution to retort present-day Urdu word processing needs, there is a great need for an Urdu word processor that could be able to justify the contemporary text editing needs of people who can read and write Urdu language.

This paper presents features and requirements for a state-of-the-art Unicode based Urdu word processor described as per the present day necessities.

It also considers the comparative analysis of the present-day word-processing solutions, their blemishes, and their strengths over each other and what more can be done in this area to promote Urdu word processing would be described in this paper as well.

Keywords:

Urdu word processing, Natural Language Processing, Guidelines for Urdu word editor,

Urdu Editor

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CHAPTER 1

INTRODUCTION

Writing is the process of communicate ideas using symbols. It is a system or method of representing language in visual form. Writing is the 4th language skill that learners need to work hard on to master. It's the mirror that reflects or shows one's knowledge about a language. Although it's highly necessary for everybody to be understood in speech, writing as such is at least as important as the ability to speak.

If your students are using inspiration software's then students can easily create an outline and use this outline as a writing guide. Get your ideas down on paper with images, videos, audio, and voice recordings. They are highly motivated. It can handle media and text. (Castellani & Jeffs, 2001).

We are going to create Urdu Master desktop application. Urdu Master is a word processor and page layout software for language such as Urdu under Windows and Apple Mac. Urdu Master is used on PCs where the user wishes to create their documents in Urdu, using the style of Nastalik with a vast ligature library while keeping the display of characters on screen WYSIWYG.

Urdu Master application is like Microsoft Word and InPage applications. This software helps you to write books, newspapers, novels, magazines, thesis etc in Urdu language. This software is usually contains a user which can directly use it. There is no need of an admin in this software. This application is according to the latest requirements of users.

1.1 Problem Statement

InPage Urdu Desktop Application is a system that is the industry standard tools for page making of Newspapers, Magazines and Books in Urdu / Arabic languages. Using the power of Noori Nastalik and Noor character and Faiz Nastalik based fonts InPage gives you the freedom to design your dreams in almost all perso – Arabic scipts like Urdu, Arabic, Persian, Sindhi, Kashmiri Pushto and Hazarag Running on MS Windows, Urdu Master makes publishing not only easy but also enjoyable.

These days almost all Urdu Books publishing work, Students Thesis, TV Drama Scripts, Advertisements and Product Brouchers are being designed on InPage Professional Dekstop publishing system with the help of other Graphic Designing Softwares like Adobe Photoshop and CorelDraw.

Although InPage Professional is very stable and runs error free even with very large files, but still there are chances of its file going corrupt due to various reasons like Flash Drive Pull Out while file was not completely written, very complex formatting of Text Layout, Windows OS Crash problems or Power failure on Desktop PCs.

Once this InPage file goes corrupt, you lose hard work of hours, days, weeks or even months. Just imagine you have been working for 2 months on a college /University Thesis and in last week just before submission, your file goes corrupt and InPage crash every time you open this file.

One more thing I would like to add here is you only get simple text without formatting and may be with some extra special characters here and there. But most definitely, only text is important, character, and paragraph formatting can be applied later.

In this problem statement, I will tell you some other problems with InPage software. Firstly we cannot publish text written in the application directly to other working tools you have to convert the InPage formatted text to internet compatible format. Secondly the use of InPage is very difficult and especially for uneducated people. Thirdly User Interface of InPage is not user friendly. Fourthly Inpage is only capable to open a file whose extension is .inp and not able to open files who have other extensions. Inpage only save file with its extension .inp. InPage need to specialized training to use.

1.2 Project Title

Urdu Master

1.3 Existing System

1.3.1 InPage Professional

InPage V3.0 (stable release) released in 2008, by Concept Software Pvt. Ltd. Its ever first version was released in 1994. The total number of registered users is more than 1,000,000 in Pakistan. Among the other features it provides Spell Checking, conversion into PDF, Unicode support and Object operations. InPage, with more than 1,000,000 registered users in Pakistan, is a major stakeholder in the domain. Its latest version is 2013, still lacking majority of the necessary features.

InPage Urdu is the industry standard tools for page making of Newspapers, Magazines & Books in Urdu. InPage also gives the facility in other languages typing like Arabic, Pashto, Persian and Sindhi in one platform.

InPage Professional is the most popular tool for writing attractive text with color and style themes. It is fully loaded with many new style symbols, themes and Urdu keyboard and widely used over the country.

InPage Professional is a very easy to use, and user-friendly application which consumes very low CPU power. InPage Professional is an excellent application for writing in Urdu. InPage Professional is one of the essential needs of the people active in society from different aspects. for example, social media, business activities, and other similar activities.

1.3.2 Urdu Editor

Urdu Editor V8.5, released by Summit Soft. The total downloads of this editor are 116,714 (till 11/03/2014). It has Unicode support, virtual Urdu On-screen keyboard, with user interface in Urdu. Urdu Editor is a full-featured text editor allowing users to type Urdu and English simultaneously. It provides a virtual keyboard on the screen for the Urdu letters and a full bilingual user interface including the Menus, toolbars, Dialogs, and Help. It is easy to compose and print Urdu-English documents, and it also allows users to copy and paste the Urdu text to other applications such as MSWord, Excel, and FrontPage.

1.3.3 Nigar Unicode:

Nigar Unicode V2.0.1.5, released by AJSoft. The total downloads of this editor are 30,850 (till 11/03/2014). It is a Freeware and provides Unicode sustenance, spell check functionality and exporting as image option as well. The odd side of it is that it has no option to export file as PDF (Portable Document Format), no object operations supported by it, and no blogging at social media sites.

All these editors, available both in industry and literature, provide some basic and advance level functionality, however, still they are lacking too many features that are requirement of any text editor of the day to cover the needs of today’s user.

Urdu Nigar Unicode includes accomplishing of Unicode technology; Support of both Urdu and English in aforementioned argument breadth (simultaneously); Multiline argument support; Support of Phonetic Keyboard; Auto Alignment based on accent selected.

(Right to Left administration and Left to Right direction); Export as an angel (output in GIF format); Spell Check (in Urdu) {checks if an Urdu chat is allotment of concordance or not}; Urdu argument can be affected from Urdu Nigar Unicode and pasted to any Unicode compliant software, you can even forward emails by pasting the argument to the email account provider.

1.3.4 Comparison of Existing System

Characteristics	**InPage**	**Urdu Editor**	**Nigar Unicode**
Language specific	No	Yes	Yes
Save file	Yes	Yes	Yes
Image browsing	Yes	No	No
Text alignment	Yes	Yes	Yes
Searching a word	No	Yes	Yes
Font size	Yes	Yes	Yes

Colouring	Yes	No	No
Image of keyboard	Yes	Yes	Yes
Easy to use	No	Yes	Yes
Easy availability	Yes	Yes	Yes
Fulfill user requirements	No	No	Yes
Undo redo words	Yes	No	No

Table 1.1 Comparison of existing system

1.4 Drawbacks of Existing System

There are some drawbacks of InPage Professional software that are:

- The document arrangement is very difficult for new users.
- The other major lack is that you cannot directly published text from Urdu Master into an internet webpage. To publish your typed content, you have to search "InPage” to Unicode Urdu Text Converter" on google and you have to convert the InPage formatted text to internet compatible format.
- The use of InPage is very difficult and especially for uneducated people.
- GUI of InPage is not user friendly.
- Inpage is only capable to open a file whose extension is .inp and not able to open files who have other extensions.
- Inpage only save file with extension .inp
- InPage need to specialized training to use.

1.5 Proposed System

After having a closer look and thorough investigation of different Urdu editors and tools and present a list of requirements and features for Urdu Word Processor. This section describes their requirements for the features of the proposed solution Urdu Word Processor (UWP).

There are various additional features that makes the system user friendly. Following Table will look around the basic features that are considered to be present in almost all of the text editing software's and our proposed solution would integrate them.

Group	**Features**
File	New, Open, Save, Save As, WYSIWYG (Print, Print Preview), Exit
Edit	Undo, Redo, Copy, Paste, Cut, Search and Replace
View	Zoom in, Zoom out, Status Bar
Insert	Time and Date, Symbol, Table, Pictures, Charts
Format	Alignment [Left, Right, Center, Justify], Text Decoration [Underline, Bold, Italic], Bullets
Custom	GUI Customization
Font	Size and Face
Shapes	Arrows, Boxes, Special Shapes

Table 1.2 Proposed system

1.6 Project Goals

The aim of this project is to deploy a desktop application that helps the students, teachers, different types of publishers to write books, notes and thesis in Urdu and different types of publications in Urdu with the following objectives:

- Add a few meaningful features to the product (quality v quantity) that affect how people use Urdu Master

- To Help People in Writing Books, Newspaper and Magazines in Their Desired Languages
- To explore the problems encountered by the existing system
- Refine existing features
- New context
- Best user experience
- A platform that will provide all required functionalities of Urdu Word Processor

1.7 Project Objectives

Urdu Master is used on PCs where the user wishes to create their documents in Urdu, using the style of Nastalik with a vast ligature library while keeping the display of characters on screen WYSIWYG. There is no need for specialized training to learn how to work and user-friendly interface (easy to use)

- To enhanced functionality of existing software
- Write Urdu columns in news papers
- Write applications and letters in Urdu
- Be able to work as professional Urdu composer for any organization
- 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
- To edit and format text in different markups. i.e colour, fonts etc

Although default writing style is from right to left but it will allow user to choose whether to write script from left to right (if user is comfortable with it)

1.8 Project Scope

After congregating and assembling the cluster of requirements mentioned above, we intend them to be more refined and extended with the passage of time. Our motive is to put those mentioned features into an Urdu Word Processor to live up to the users' present-day needs regarding word processing. Ahead in near future, we would be developing word processing application that would cater all these features hence, would evolve a new breed of word processing application in computing.

1.9 Functional Requirements

Functional requirements are the requirements that the end user specifically demands as basic facilities that the system should offer. All these functionalities need to be necessarily incorporated into the system as a part of the contract. These are represented or stated in the form of input to be given to the system, the operation performed and the output expected.

- Calligraphic style handling of Nastalik script using Nastalik font
- The editing and formatting capabilities of the Urdu Master demonstrate the application's true power
- Text can be inserted, edited, moved, copied or deleted within your document
- The appearance of the text can be modified in numerous ways
- Easy to use and Standardized MS Windows interface with support for all MS Windows platforms
- Full complement of Page Layout features including Pages, textboxes, pictures, text run around and lots of sophisticated typographic control
- Last but not the least has been our end user support and constant endeavour to improve Urdu Master usability and functionality

1.10 Non-Functional Requirements

These are basically the quality constraints that the system must satisfy according to the project contract. The priority or extent to which these factors are implemented varies from one project to other. They are also called non-behavioural requirements.

They basically deal with issues like:

- Availability
- Performance
- Usability
- Compatibility
- Maintainability
- Reliability
- Security

1.10.1 Availability

Availability describes how likely a system is accessible for the users. The availability of Urdu Master Desktop Application will be good enough if there is no issue in the system or on the server on which the setup of Urdu Master will be placed. The Urdu Master will be accessible to the users at any time and from anywhere in the world.

1.10.2 Performance

Performance defines how fast is a system. Our Urdu Master Desktop Application approximately fulfills all of its functionalities including its quick response to an action which is performed like opening a file, updating a file, saving a file etc. That's why, the performance of the system will be best and most accurate.

1.10.3 Usability

Usability is classical non-functional requirement of the Urdu Master Desktop Application that means how hard it is to use the Urdu Master Desktop Application. The usability of the Urdu

Master Application is uncomplicated because Urdu Master Desktop Application has a user-friendly interface. It is very simple and no extraordinary skills are required to use.

1.10.4 Compatibility

Compatibility defines how a system or its elements can work in different machines or environments. We have used C# language, Visual Studio software in the development of Urdu Master Desktop Application. We have run our project on Windows Operating System, without any issue.

1.10.5 Maintainability

Maintainability defines the time required to fix any problem or any change in the project. The Urdu Master Desktop Application approximately fulfills all of its documented functionalities but in case of any change, the maintenance of the Urdu Master Desktop Application is very easy because every aspect of the Urdu Master Desktop Application has separate files with well managed lines of code.

1.11 Hardware Specifications

- CPU: Dual core processor or above
- Hard Disk: 256 GB or above
- RAM: 4 GB or above
- Keyboard
- Mouse

1.12 Software Specifications

- Operating System: Windows OS / Mac OS
- Visual Studio .Net

1.13 Gantt Chart

The Gantt Chart is representation of the project timeline. It is a type of bar chart that illustrates a project schedule. The Gantt Chart lists the activities that must be performed during the software development process in the given time period. Based on the Work Breakdown Structure (WBS), a Gantt chart shows the project phases on the vertical axis and their corresponding duration of time on the horizontal axis. The duration of an activity corresponds to time period is highlighted by different colours. Modern gantt chart also shows the dependency relationships between activities and current schedule status.

Tasks / Time period	**13-01-22**	**01-03-22**	**01-04-22**	**11-05-22**	**01-06-22**	**06-06-22**	**11-06-22**
Requirements gathering	🟥						
Documentation		▨					
Ui designing			🟩				
Implementation				🟥			
Integration testing					🟨		
Bug fixing						🟦	
Final testing							🟧
Release version							▨

Table 1.3 Gantt Chart

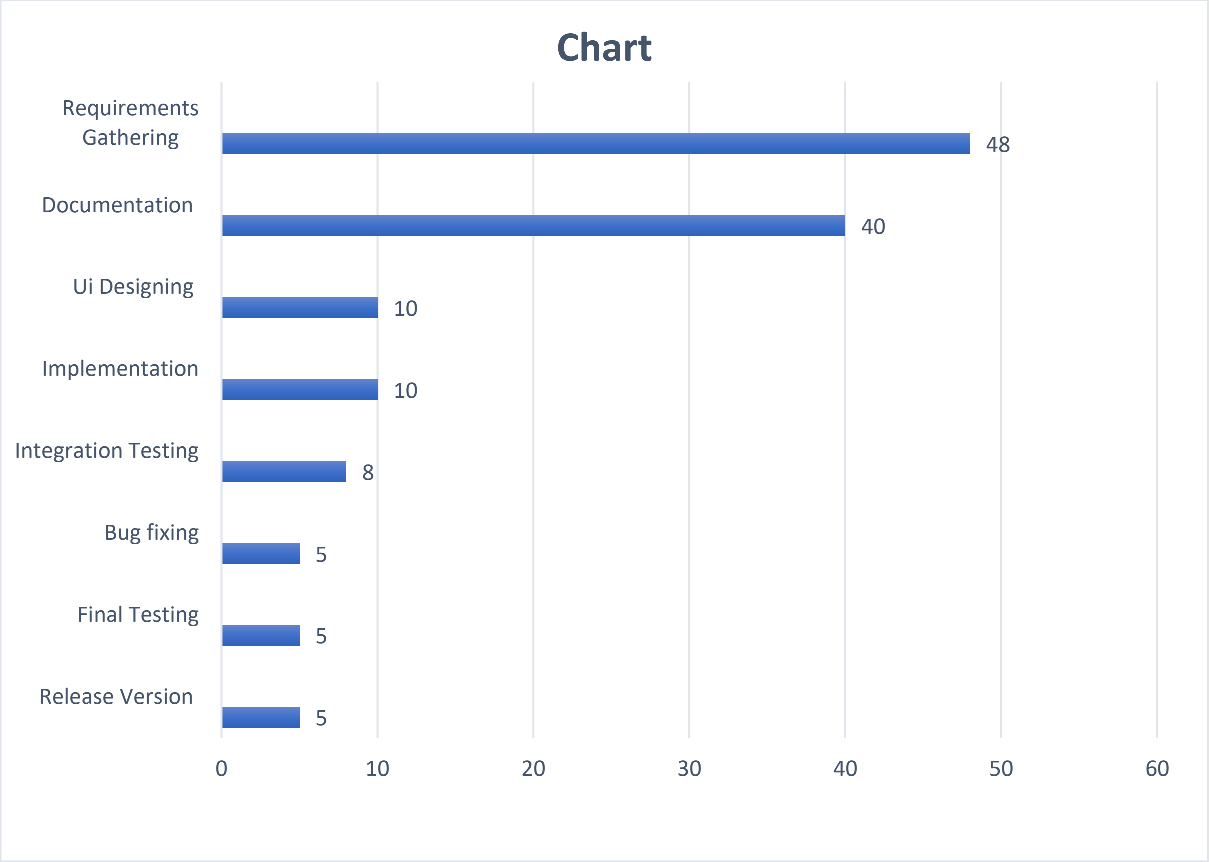


Table 1.4 Chart

1.14 Project Cost Estimation

There are many project cost estimation techniques like Constructive Cost Model – 1 (COCOMO – 1), Constructive Cost Model -2 (COCOMO – 2), Entity Relationship Diagram (ERD) Analysis, Functional Point (FP) Analysis and Lines of Code (LOC) etc. For “Urdu Master” software cost estimation, we are going to use Constructive Cost Model. Constructive Cost Model is a regression model based on **number of Lines of Code (LOC)**. It is a procedural cost estimate model for software projects and is often used as a process of reliably predicting the various parameters associated with making a project such as size, effort, cost, time, and quality. The key parameters which define the quality of any software products are primarily Effort & Schedule:

- **Effort:** Amount of labor that will be required to complete a task. It is measured in person-months units.

- **Schedule:** Simply means the amount of time required for the completion of the job.

  It is measured in the units of time such as weeks, months.

Activity	**Effort**	**Hours**	**LOC**	**Cost**
Requirements gathering	10	30		3000
Documentation	20	60		4000
Ui designing	10	40		5000
Implementation	30	130	2200	40000
Integration testing	12	30		6000
Bug fixing	8	40		7000
Final testing	5	20		5000
Release version	5	10		10000
Final	100%	360	2200	RS 80000

Table 1.5 Cost Estimation

The project cost is estimated around RS 87000 (Eighty-Seven Thousand)

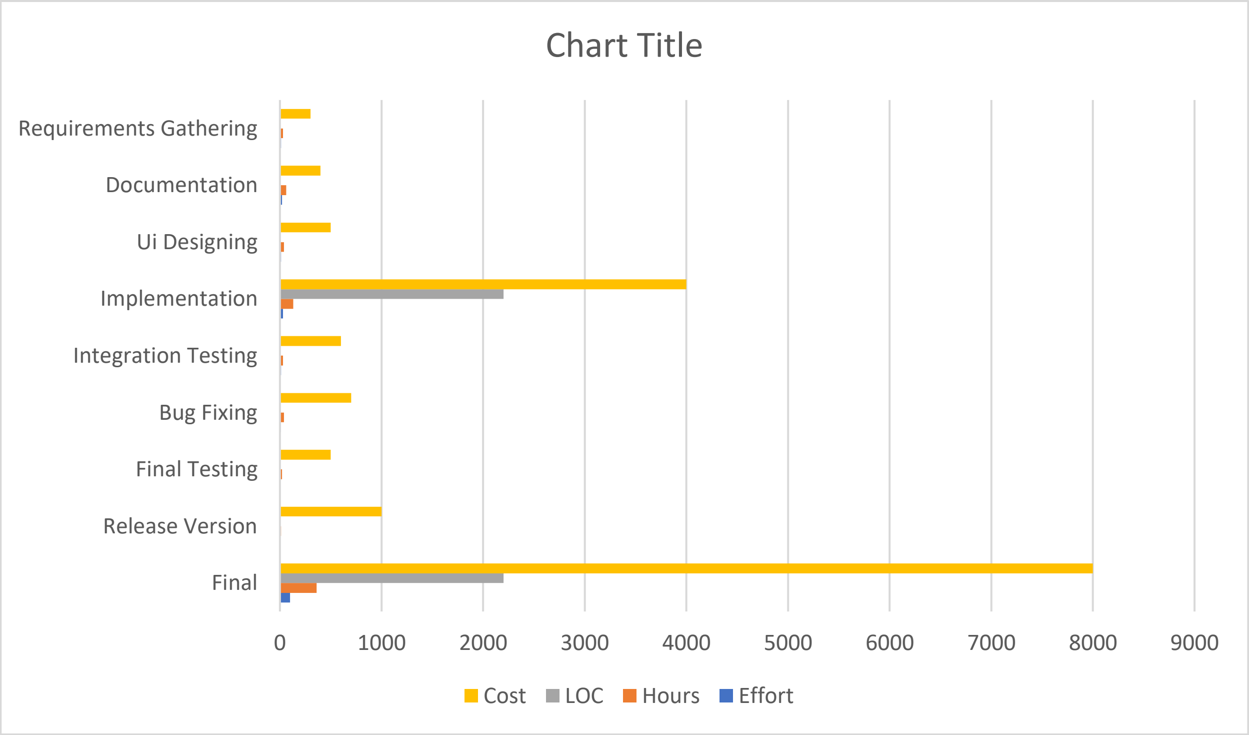


Table 1.6 Cost Estimation Chart

CHAPTER 2

LITERATURE REVIEW

Writing on a computer screen is a common feature that is not found in paper-based group writing exercises. Everyone can read it easily and no one owns it or is responsible for it. This encourages the kind of experimentation and risk taking that is often lacking in pen and paper assignments.
(D. Eastment, ELT and the New Technology)

All good writing, regardless of writing medium, goes through an authoring cycle that begins with thinking and discussing a subject and taking notes. After prescription, authors can start writing as a first draft. When authors revise and edit texts, they can adopt the ideas of colleagues, teachers and editors about the paper. (Strassman & D'Amore, 2002).

In the writing process, computers and computer software are valuable tools for many students. Additionally, word processing, speech recognition, audio feedback, word prediction, and other types of software packages help students with learning disabilities participate in well-developed classroom writing programs. (Williams, 2002).

The biggest challenge was coming up with a plan for typing Urdu on the keyboard. I mapped my own keyboard using Tavultesoft Keyman software. It was very easy to use. As we have discovered, existing keyboard mappings for written Arabic are generally not phonetically mapped.

In other words, we need to map the Urdu letter feh to the keyboard letter f. Such. Persian, he found a phonetic-mapped keyboard that suited the CRL phonetic layout, so he developed his own keyboard based on that mapping. It doesn't matter if the keyboard layout is standardized or not. He is the only one to enter text. (Computing Research Laboratory, 2002)

Mr. Chikamatsu points out that CALL is becoming popular and becoming the standard in foreign language classes. The researchers examined the impact of computers on the writing efficiency and quality of advanced Japanese learners. One of the results, he said, was that the accuracy rate and the number of kanji characters used differed significantly, suggesting that learners benefit from computerized his writing. (Chikamatsu, 2003)

A neural network is trained on a specific range of spelling errors using a spelling correction system. Back propagation methods are commonly used in training neural networks. (V. J. Hodge and J. Austin 2003).

According to the analysis, word processing first became popular in 1971 and people started thinking about paperless office work to make their repetitive office work easy and fast. more quickly. People started this concept, mainly focusing on English language processing features. Over time, more and more new solutions are added to the existing ones to improve them. (Haigh, T. 2006)

According to Gul, currently Urdu is spoken by 63.4 million people worldwide. In Pakistan, Urdu is the official language and only 20% of the total literate Pakistani population understands English. Therefore, word processor must be in Urdu language for native speakers to fully understand and they can take full advantage of current technology. (S, Gul)

Students begin by deciding what and how to write. Here, students practice various activities such as brainstorming, reading, listening, and quick writing. Brainstorming is an activity in which learners brainstorm an idea to create a process. During this stage, students try to present their ideas on paper in the form of an outline.

Usually the writing process includes a planning phase. Crystal confirms that at this stage “we organize our thoughts and prepare an outline of what we want to say in the document. Even the shortest messages require some planning time. The concept of writing should be supported by the concept of rewriting. “A model of what happens when we write should account for the act of revision, from the early stages of note-taking, annotating, and heading, through various drafts, to the final draft.” Crystal (2006).

The use of word processing in student writing is becoming more and more common, for example, setting out seven ways to develop writers using word processing: Text legibility, Export potential Versions in multiple formats, Ease of modification, Fluent text production (all-compose, no grabs, etc.), Application support (for spelling, grammar, semantic mapping), Portable and easily reproducible electronic documents (easy to share and provide feedback; hard to lose) and Potential for links to electronic source documents.(Graham 2008),

When we need help with complex cognitive and manipulative tasks in our daily lives, we often turn to others. We ask friends to answer questions we cannot answer ourselves. Lighting is no exception. We often enlist friends and colleagues to help shape and refine our writing. But you can't rely on it all the time. Colleagues don't want us to proofread every sentence we write, or delete a few lines from every paragraph in a 10-page essay. (M. Krieger, 2009)

Eyres asserts that "there is no doubt that the editing facilities provided by computers have revolutionized our attitude to errors". If students have access to computers in school, computers will be of great help to students and help them in the writing process. (Eyres, I. 2007)

According to Bergin, people who are fluent in Urdu language only prefer to write documents in their official language because it can improve their productivity for their day-to-day work in their respective fields. Many efforts have been made to solve these problems and companies have come up with their proprietary software. The software is still used by organizations, but some restrictions are maintained in fulfilling their required purposes at different levels of use. (Bergin, T. J. 2006)

According to Lewis, Gary F and Charles D, Urdu is a subset of Arabic language that has attracted great interest among researchers and scholars since its development. Currently, Urdu is spoken in more than 20 countries and 70 million Urdu speakers around the world. Urdu is an official language of Pakistan. (Lewis, M., P., Gary F., S., & Charles D., F. 2013)

InPage is word processing and page layout software for languages such as Urdu, Pesian, Pashto and Arabic on Windows and Mac operating systems, first developed in 1994. It is mainly used to create pages in Urdu language, using Nastaleeq Arabic script. InPage is widely used on PC where users want to create their Urdu documents. Key features are, we can write in multiple languages, page border is standard level, written words are also counted and much more. (http://www.inpage.com, 2017)

Liwal Pashto System – Introduced for Windows 98 in 2004 and widely used. This system was his first Windows-based Pashto system, and users could write his Pashto text on most word processors (Microsoft Word, Notepad, WordPad, CorelDraw, etc.).

Pashto fonts are designed by some font designers to replace Urdu characters with Pashto characters, so we replace Urdu characters with Pashto characters and apply this technique to all characters. Installation of new fonts for Arabic script is not supported. (A Practioner's Approach, 2001)

According to S. Naz and R. Ahmad, text segmentation techniques can divide the Urdu OCR system into three categories, including character-based, ligature-based, and sentence-based systems. Currently, researchers are focusing on his ligature and sentence-based OCR. All of these OCR systems are primarily based on splitting document images into lines of text, ligatures, and characters.

The stylistic complexity of the Urdu Nastaleeq is a major issue in segmentation into lines and ligatures. The main complexity of Nastaleeq's style includes contextuality, compactness, overlap, italics, diagonals, and much more (S. Naz, 2016)

Inam Shamsher proposed a technique for recognition of single characters only and claiming about 98.3 % accuracy. This method is script independent and is used for printed characters only. There is no details provided of given tools or softwares used in the method. (Shamsher Inam, 2007)

Tabassam Nawaz presented an idea for character recognition of isolated characters. This method is proposed by her and works basically in three steps; image pre-processing, segmentation of line and character, making Xml file which is then used as a database and for training purposes. The authors claims 89 % recognition accuracy. (Nawaz Tabassam)

Zaheer Ahmad has published an article on optical character recognition in Urdu for the Nastaleeq font. According to the author, segmentation is divided into three steps. The first step identifies the line of text. The words are separated in the second step, and the last step shows the segmentation and extraction of letters from the words. (Ahmad Zaheer, 2007)

Sobia Tariq Javed only worked in the pre-processing phase. Her work is exclusively for the Nastaleeq style. In the first stage, the horizon or baseline is detected and isolated. The next step is to split the base of the ligature and the chord. (Tariq Sobia, 2009)

The tokenization method is completed through figuring out word obstacles in languages like English wherein punctuation marks or white spaces are used to segregate phrases. Durrani N. And Hussain S. Cope with the orthographic and linguistics capabilities of Urdu language for word segmentation, using a hybrid answer of n-gram ranking with rule based matching heuristics. (D. Nadir, H. Sarmad, 2010)

In English text, words are separated by spaces as tokens. To separate words in Urdu, do not use spaces after each word as in English. Urdu natives separate words from each other when reading and writing texts through cognitive knowledge of the language. (Sara Stymne 2011)

The process of separating and separating a sentence into individual tokens of a word is called word splitting or tokenization. Almost all NLP applications require the text to be split into individual tokens at some stage for processing such as machine translation (MT) and spell checking. In Natural Language Processing (NLP), the terms tokenization or word segmentation are considered the most basic tasks. (A.J mahar 2012)

Sindhi is the official language of Sindh, Pakistan, spoken by about 34.4 million people in Pakistan and about 2.8 million people in India. The Sindhi script is based on the Persian Arabic script, which is a Nashk Arabic typeface that uses an italic ligature system from right to left. (Ismaili, I.A, 2011)

This post presents ideas on how to find ligatures or letters in larger documents. Nadira Muda also applied her matching approach to the template English alphabet recognition. Mohammed Ali Qatran used a template matching approach for Musnad character recognition. (Qatran, Ali 2011)

According to Raymond. B. Visual Studio Tools for Office (VSTO) includes a complete set of managed APIs, making Word an easy and normal programming environment for .NET developers. There are two ways to create an Office Add-in.

The most common is VSTO and the other is a web add-in. This system uses the VSTO Add-in to perform certain functions using the operating system of the local computer other than the Web. In addition, the development cycle is fast. (Raymond. B, 2018)

According to CraigJ and ScalaIK, each InPage font has a limited number of glyphs for every character to create a complete text in Arabic. The system fails if you enter mixed text. Islamic symbols are excluded from all fonts. It has a limited number of glyphs and no ligatures. Contains up to 4 possible shapes for each character, alternate shapes are not supported. (Designing with Type, the Essential Guide to Typography, 2006)

Spelling errors can therefore also be divided into two categories: typographical errors and cognitive errors. A typo can be defined as a misspelling of a word whose correct spelling is already known, but misspellings occur inadvertently. Typos are primarily related to typing when a word is misspelled because a finger is placed on the wrong key on the keyboard. (Waqas A,2014)

According to Wesley A., you need a system that can handle all your text entry needs in a given language. This requires a font that looks good, has all possible characters in different shapes and styles, and doesn't lose text memory. Each font should support texts in different languages of Arabic and Quranic verses.. (Wesley. A, 2000)

Urdu Spell Checker was developed by Urdu Mehfil and has about 1,16,000 words which is less than our application. (Bhurgri M, 2017)

The system uses a hash structure algorithm for fast and efficient lookups. Word analysis and validation also includes validation of error patterns and trends of spelling errors that occur when entering Sindhi text.

Soylent's Shortn component, which references document summaries, has also received significant research attention. Microsoft Word has a summarization feature that uses sentence extraction to identify whole sentences and keep them in passages, discarding the rest. As a result, significant cropping is required, but the content cost is high. (D Marcu,2000)

The proposed model was tested on different corpora of Sindhi texts collected via the Internet (general articles and news articles) and publishers (book chapters and electronic dictionaries). A detailed tokenization report is shown in Table 2. The articles in Sindhi Literary Books were originally typed into the Sindhi word processor using the Sindhi keyboard designed for Sindhi writing. (Z. Bhatti, 2013)

Virtual QWERTY keyboard developed for English. It uses famous phonetic keyboard layout for the convenience of Urdu users. The virtual keyboard also includes shortcut buttons for inserting symbols and buttons for customizing the Urdu keyboard layout. (http://www.cle.org.pk)

Mathematical equations are very important in various reports and research work. Most introductory level mathematics books are also in Urdu. Therefore, UWP also requires formulas. We are planning to integrate "MathEditorMini1.0" that generates formulas as images and pastes them into the editor.. (Imran. K, 2015)

Learning and comprehension features are of utmost importance to assess how well PASHAPP provides functionality as per user requirements. While the search mechanism (SM), image browsing (IB) have relatively weak user response, the rest of the features, such as the ability to understand symbols (IU), keyboard layouts (KL), and overall features (OF) yields promising results. Readability of labels indicates comprehension ability. (Muzammil, Khan, 2017)

Currently, researchers are focusing on ligature and sentence-based OCR. All of these OCR systems rely primarily on splitting the document image into lines of text and ligatures. The stylistic complexity of the Urdu Nastaleeq is a major obstacle to the division into lines and ligatures. (Daud A , Khan W , 2017)

CHAPTER 3

ANALYSIS

3.1 Analysis on Methods Related to Project

In this point, the method is discussed that is followed for the development of the Urdu Master desktop application.

The particular Urdu Master refers to the methods and processes of the interaction between People Writing Books, Newspaper and Magazines, Publishing agents, Students writing thesis, Teachers and other staff of institutes.

In this case we are focusing on desktop-based technology as we all know that technology is a very fast-growing network that is growing its roots in everyday life with a fast pace.

3.1.1 Exploring The Available Techniques

There is a lot of programming techniques available to be used for such kind of elaborations. The point is to choose such an environment that will be able to operate in a convenient and easy way. This is more or less optional and individual processes that depends on the developer’s experience as well. After searching, we conclude that we will use procedural developing technique and the platform on which we build this software is Visual Studio.

3.1.2 GUI Construction

After analyzing the program’s structure and defining what it should contain. A graphical representation of this information is needed to implement to enable the user to interact with the software.

3.1.3 Testing

To ensure that everything works properly and as it has been expected, test performance has to be done upon the systems functionality. We are using unit testing for the project. So that the error detection can be done. So that the admin can work on its information system process.

3.1.4 Time Analysis

The project should be complete within the specified time period. So time analysis is very necessary. The project is divided into eight different phases and each phase take different time to complete. The first phase Requirement Gathering take time period about 48 days, second phase Documentation take time about 40 days and User interface take time about 15 days etc. Time period of each phase is well defined after a thorough analysis and each phase should complete in that time period.

3.1.5 Cost Analysis

The project must complete within the estimated cost. Cost should estimate after thorough analysis and by using cost estimation techniques. Cost of project is estimated about 80000 rupees. The estimated cost is used differently in different phases because each phase has different importance.

Like estimated cost for phase Requirement Gathering is about 3000, Documentation is 4000, User Interface designing is 5000 etc.

3.2 Software Methodology

There are many different methods and models which are used by the people according to their work and planning for the development of the software or project. Here, we are going to use Iterative Water Fall Model for development of our URDU MASTER Desktop Based Application because we have read about the working of the model and we believe that it would be easiest and most rewarding model.

It is perfect methodology for our project after analysis of different methodologies. To fulfill our software development requirements, we have selected Iterative Water Fall Model.

3.2.1 Iterative Waterfall Model

This development model is compatible with the requirements of our project. This project has variety of features and it ensures the time saving. That is why, we find it best suitable methodology to choose it. Our project is divided already into different phases. We worked in each phase in sequence and sent it to our project supervisor. He well suggested us about the improvement in every phase.

We will improve that phase according to the suggestions. When the phase will be improved and accepted by our project Supervisor then we will advance towards next phase. This will be done due to the waterfall nature of this Model. It is good to detect errors in the same phase in which they are committed.

It reduces the effort and time required to correct the errors. The iterative waterfall model provides feedback paths from every phase to its preceding phases, which is the main difference from the classical waterfall model. It is highly cost-effective to change the plan or requirements in the model. Moreover, it is best suited for agile organizations.

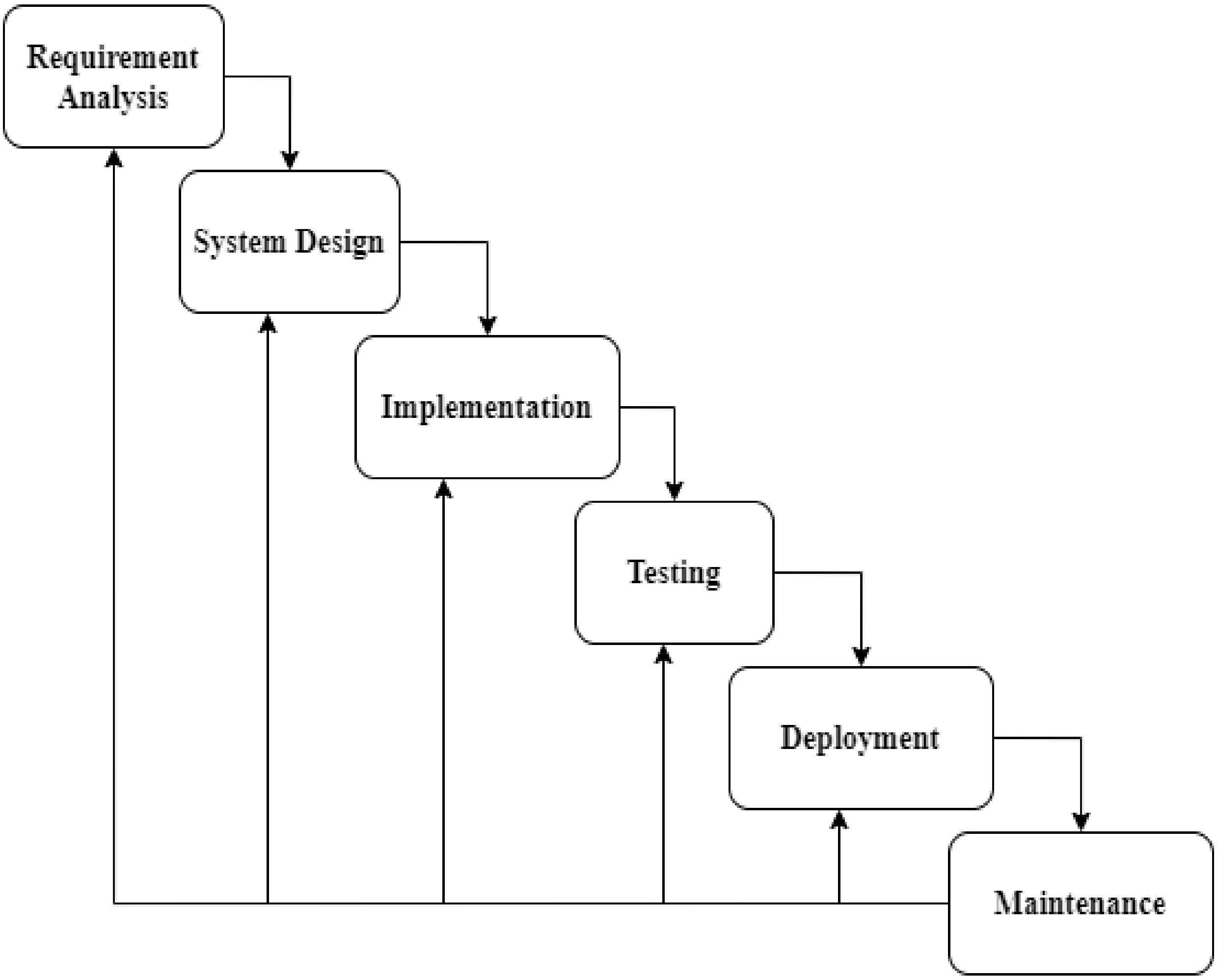


Fig 3.2.1 Iterative waterfall model

3.3 Analysis on Tools and Software to Be Used

In making any type of software or a project there are some tools and software that are used as a helper to develop a software. These tools and software are discussed in the following manner:

3.3.1 Visual Studio

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services, mobile apps and desktop applications. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

Visual Studio .Net works as a compiler of applications we create in C# language. Visual Studio .Net is used to create the software, run the software and test the software we create in C# language. The integrated debugger works both as a source-level debugger and a machine-level debugger.

Other built-in tools include a code profiler, designer for building GUI applications, class designer, and database schema designer. We use Visual studio software to create GUI of the Urdu Master desktop application. Visual studio also works as compiler for our source code. Visual studio provides facility to write code in it.

3.3.2 .Net Framework

.Net Framework is a software development platform developed by Microsoft for building and running Windows applications. The .Net framework consists of developer tools, programming languages, and libraries to build desktop and web applications. It is also used to build websites, web services, and games.

The .Net framework was meant to create applications, which would run on the Windows Platform. **.Net Framework Architecture** is a programming model for the .Net platform that provides an execution environment and integration with various programming languages for simple development and deployment of various Windows and desktop applications. It consists of class libraries and reusable components.

The .NET Framework is just that - a programming framework of reusable components that developers can tap into when writing programs so they do not need to reinvent the wheel when they want to connect to a website and download a file, return the square root of a number, manipulate an XML file, control print jobs, compress a data stream, or any of a huge number of other tasks.

Visual Studio is a collection of programming languages, tools, and an IDE for developing programs. This is where the program is actually written, compiled, tested, and packaged for distribution. These languages leverage the .NET Framework to make the development process faster.

3.3.3 C#

C# is pronounced as “See Sharp” is a modern, object oriented and component-oriented programming language. We use C# language for the creation of Urdu Master desktop application because it supports may functionalities of our required application. C# helps to create virtual keyboard, text area, different bars with different function. C# help us to create fast, reliable and secure application.

C# also facilitates us to overcome the limitations of the existing software. C# is designed to work with Microsoft's .NET platform. Microsoft's aim is to facilitate the exchange of information and services over the Web, and to enable developers to build highly portable applications.

C# simplifies programming through its use of Extensible Mark-up Language (XML) and Simple Object Access Protocol (SOAP) which allow access to a programming object or method without requiring the programmer to write additional code for each step. Because programmers can build on existing code, rather than repeatedly duplicating it, C# is expected to make it faster and less expensive to get new products and services to market.

CHAPTER 4

DESIGN

4.1 Use Case Scenarios

4.1.1 Use Case (CREATE)

Id

UC01

Brief Description

User will create file in the application so that the user will be able to use functions and generate the file. Functions are used to insert anything like pictures, shapes, tables etc. or cut, copy and paste, bold, italic and font style etc.

Primary Actor

- User

Pre-conditions

- First Desktop application must be installed.
- Desktop application should be running properly with no failure.
- The user should be valid.
- Computer or laptop must be available.

Basic Flow

- User Open the application.
- User click on the FILE Menu option.
- Open the file menu.
- User click on the New Option or pressed shortcut key (Ctrl + N)
- Than create file in this application.
- The User type the any text in Urdu format and insert the function in this application.

Post-conditions

- User will be created file successfully.
- User will be able to use the application to typing urdu format.
- And user will be created newspaper, application in urdu format of this application.
- And insert the picture, shapes, tables and create the designing in this application.

4.1.2 Use Case (EDIT)

Id

UC02

Brief Description

The user will edit and modify the file in this application. User will perform some function (cut, copy, paste, delete) in this created file. Or user easily text edit in Urdu format.

Primary Actor

- User

Pre-condition

- Computer or laptop must be available.
- The Application must be installed.
- The file must exist.
- The Application must be running properly.

Basic Flow

- User Open the application.
- User click on the Edit Menu option.
- User open the existing file.

- User will edit and modify the text and paragraph according to needs.
- User save the edit file or press shortcut key (Ctrl + S)

Alternative Flow

- User does not open the existing file.
- An error message will be displayed that the existing file is not open.
- Sometimes will be displayed that existing file is not occur.
- User again open the existing file and than edit.
- Second case is user create the new file and than perform working.

Post-condition

- The User should be able to edit and modify the text and paragraph.
- User should be able to perform many function (cut, copy, paste and clear) in this created file.

4.1.3 Use Case (SAVE)

Id

UC03

Brief Description

The user will save or save as the file in this application. User will create the file, edit file in this application. And then user will save the file in this application. The benefits of saving file is no (data or information) loss.

Primary Actor

- User

Pre-condition

- Computer or laptop must be available.
- Application must be installed in computer.
- User will create, edited the file must be available in this application.

Basic Flow

- User Open the application.
- User click on the FILE Menu option.
- Open the file menu.
- User click on the Save Option.
- The file is saved.

Post-condition

- The created file is saved successfully.
- User any time type the text, paragraph and perform many function in this created file, no data lost.

4.1.4 Use Case (PRINT)

Id

UC04

Brief Description

The user will able to print the existing file, edit file.

Primary Actor

- User

Pre-condition

- Computer or laptop must be available.
- Application must be installed on this computer.

- Created, edited and saved file must be available in this application.
- Printer must be available.

Basic Flow

- User Open the application.
- User click on the FILE Menu option.
- Open the file menu.
- User click on the Print Option.
- The create file is print by pressing the command or by typing shortcut key (Ctrl + P)

Post-condition

- User created file is printing successfully done.
- User is directed to create option again, and then create the new file and perform the many task again is previous discuss in this application.

4.2 Use Case Diagram

4.2.1 File Creation

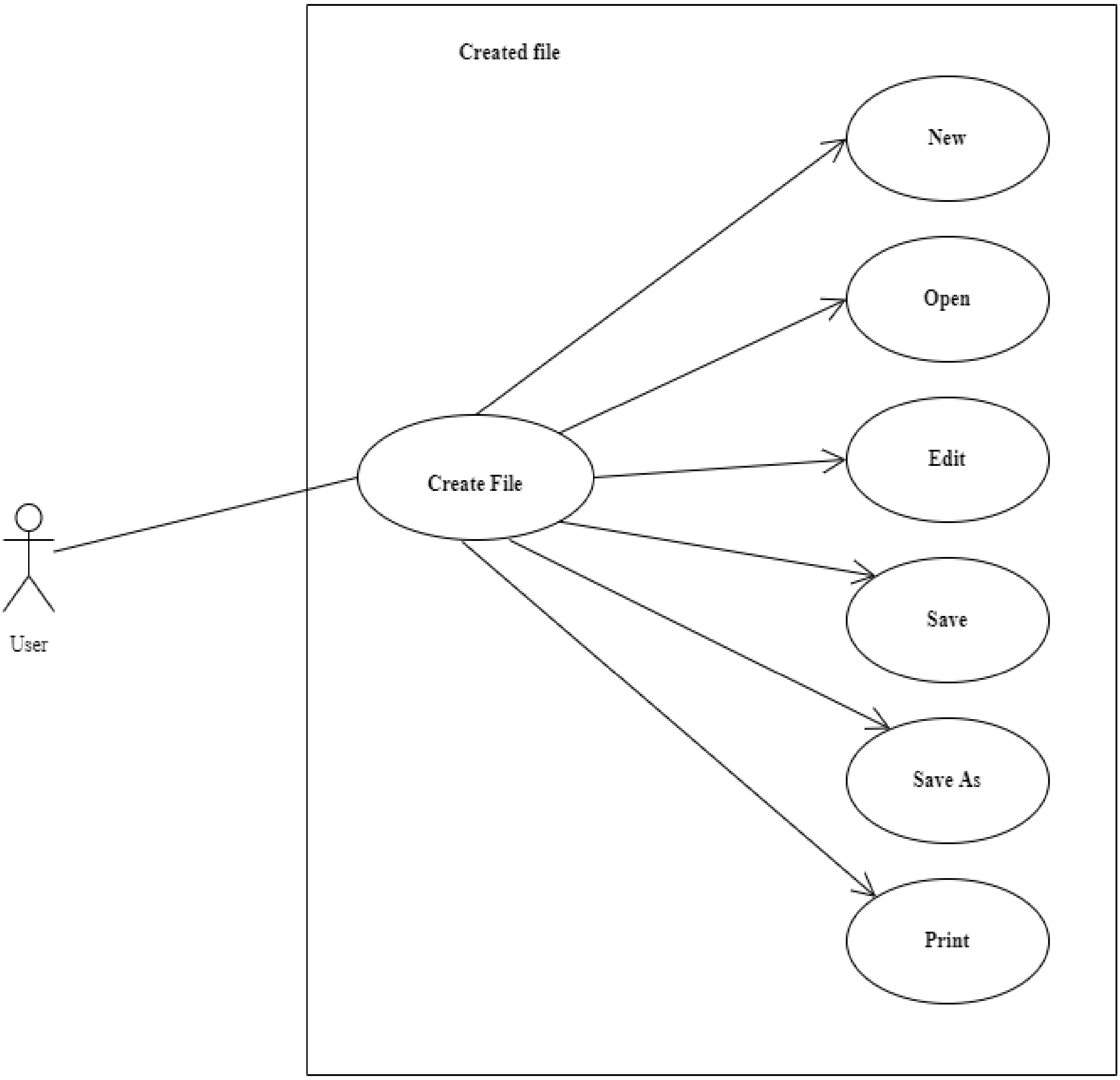


Figure 4.2.1 File Creation

Description

The above use case diagram show user create the file in urdu master application. The user click on the ‘New’ button and new file is create. And user perform the many task and function apply on this file.

4.2.2 Edit File

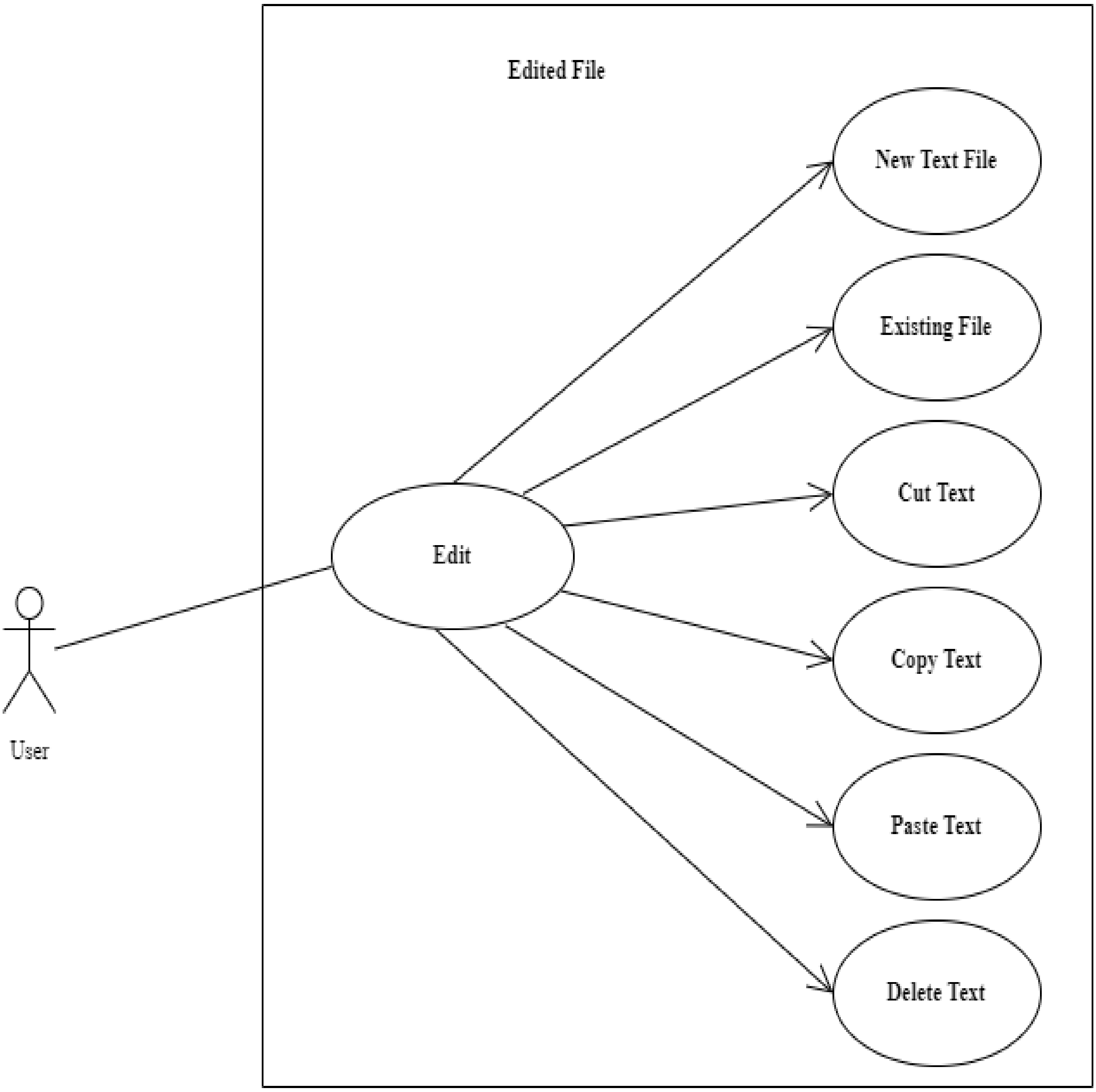


Figure 4.2.2 Edit File

Description

The above use case diagram show the user edit the existing file. The user copy, past or delete a text in this file. And user perform the many editing function on this file.

4.2.3 Save File

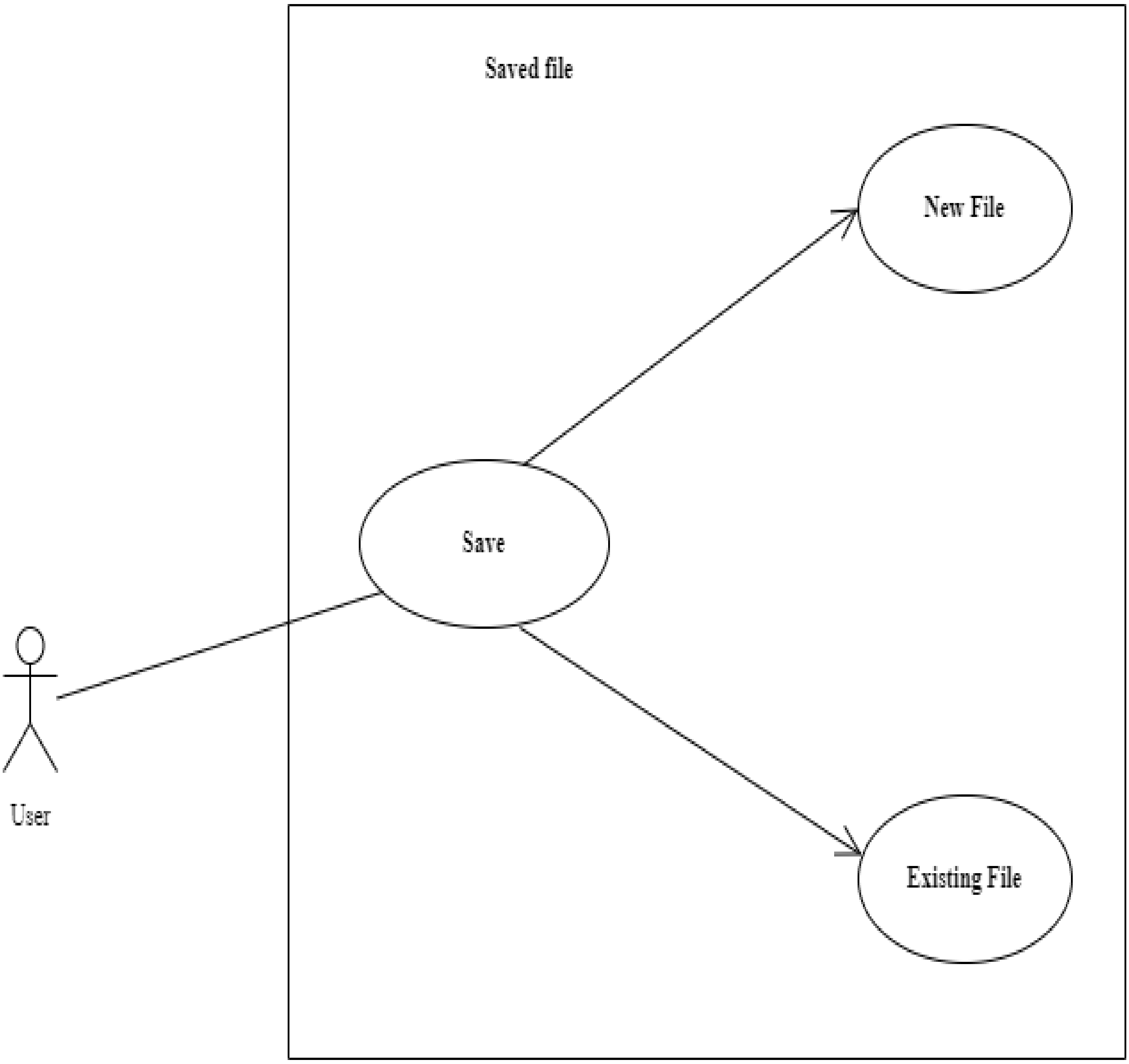


Figure 4.2.3 Save File

Description

The above use case diagram show the new or existing file savng process. And user any time open the file and perform the such task.

4.2.4 File Printing

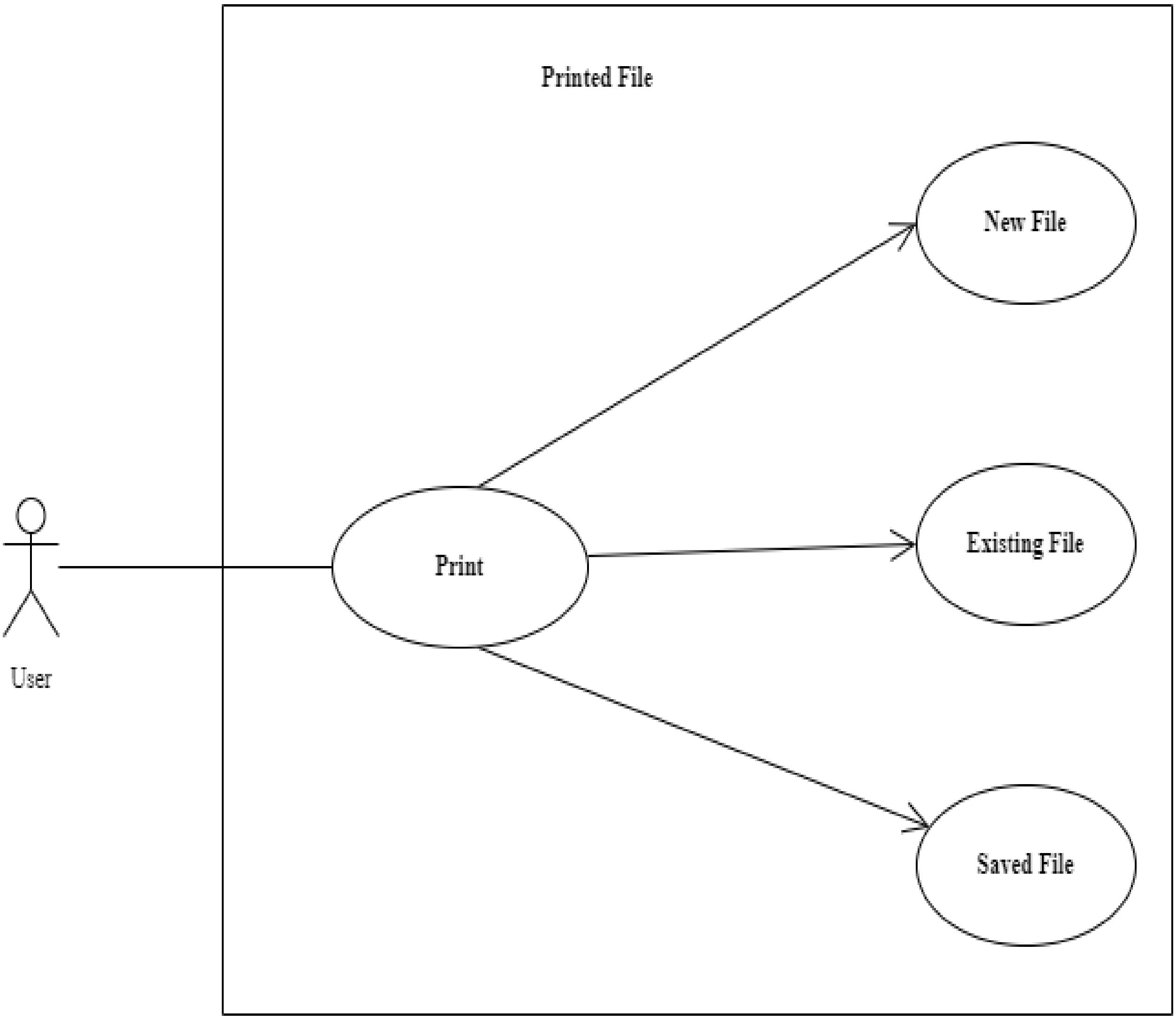


Figure 4.2.4 File Printing

Description

The above diagram show the existing or saved file printing process. The user perform many tasks, save the file and then print the file.

4.3 Sequence Diagrams

4.3.1 File Creation

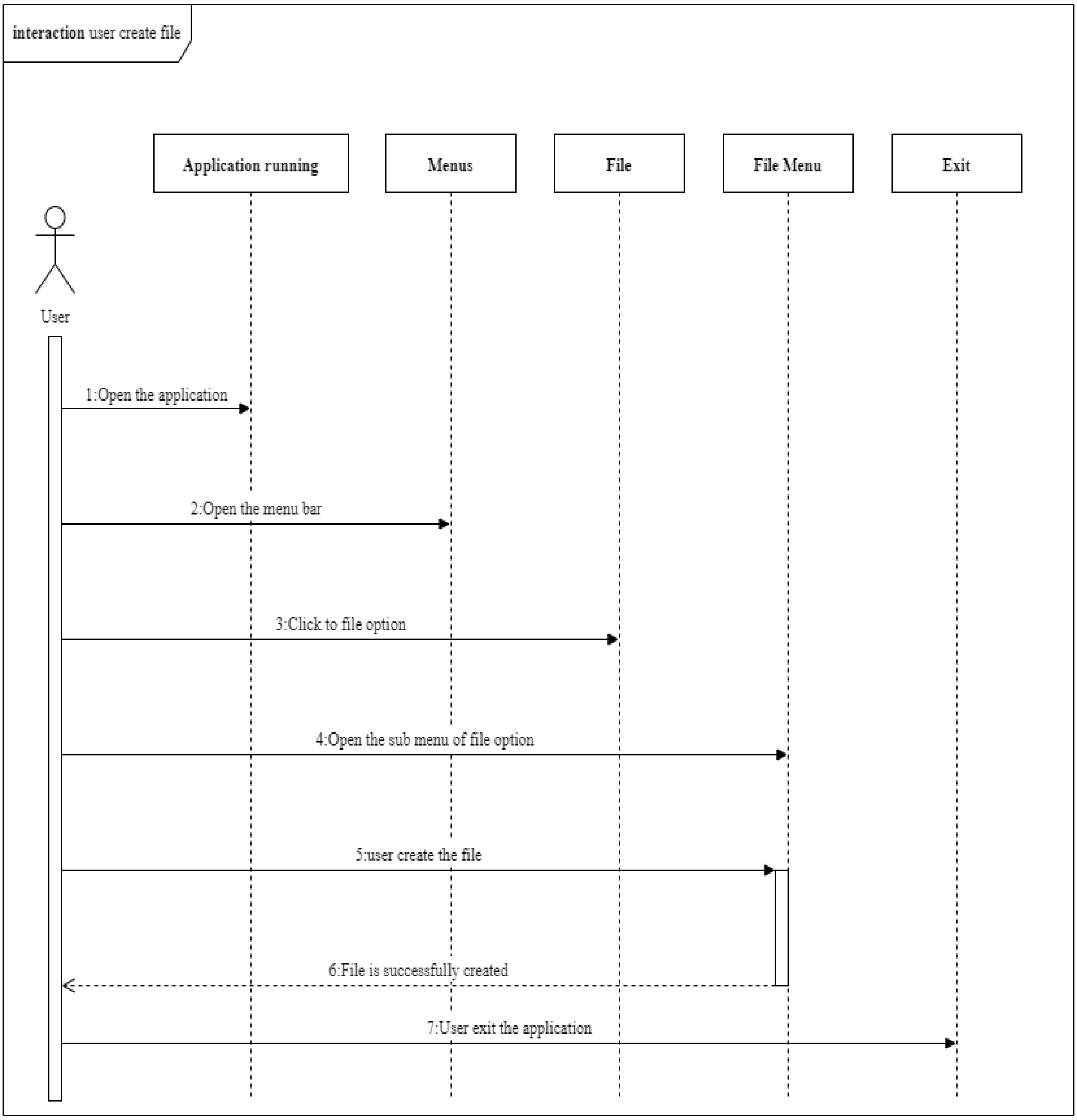


Figure 4.3.1 File Creation

Description

This Sequence diagram show the user creation file in this application. And application must be running properly with no failure. The user opens the application and open the menu bar. Users click on the file option and submenu of file option is opened. Then user create the file and perform the many function or task in this file.

4.3.2 Edit File

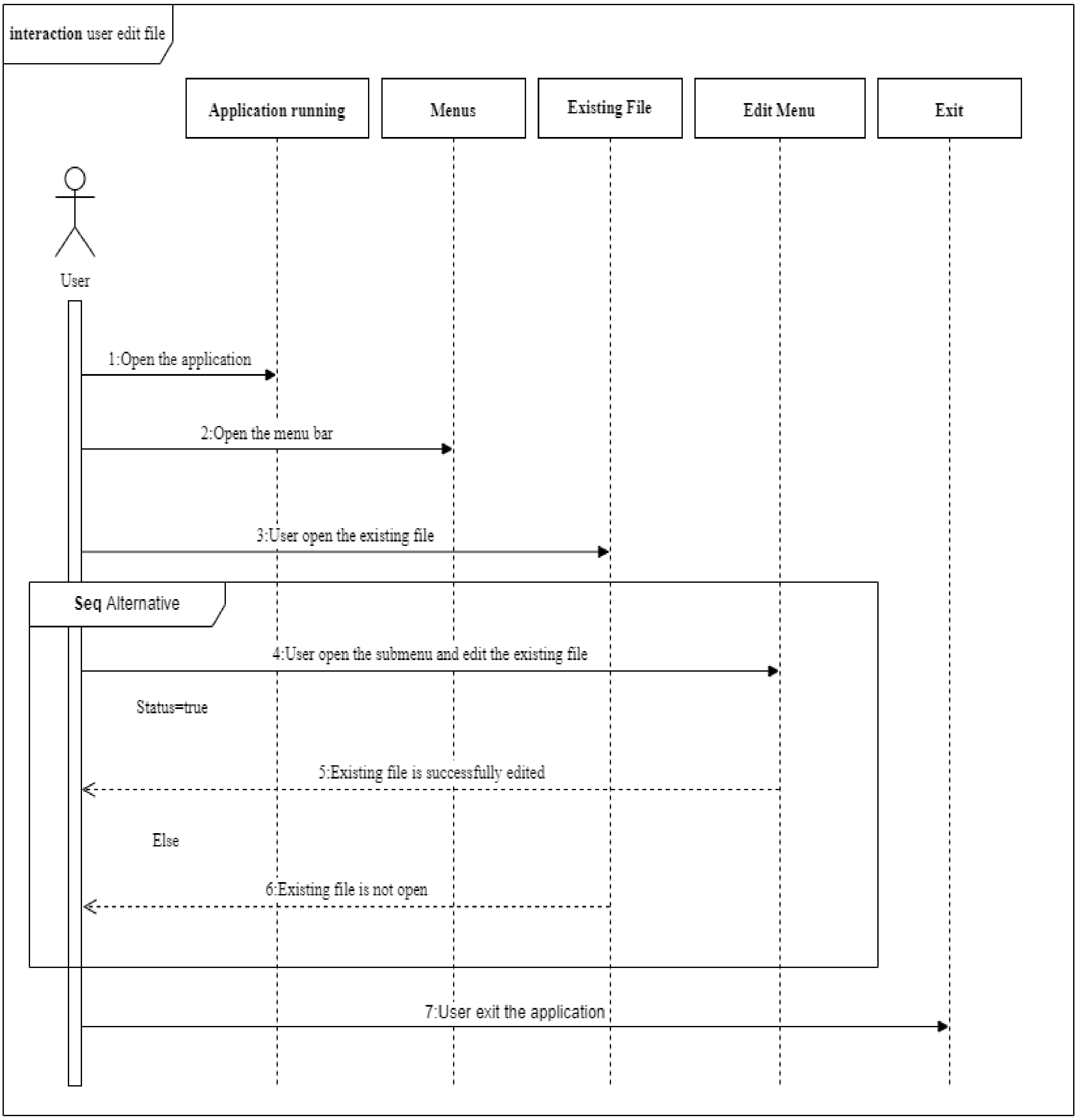

interaction user edit file
Application running
Menus
Existing File
Edit Menu
Exit
User
1:Open the application
2:Open the menu bar
3:User open the existing file
Seq Alternative
4:User open the submenu and edit the existing file
Status=true
5:Existing file is successfully edited
Else
6:Existing file is not open
7:User exit the application

Figure 4.3.2 Edit File

Description

This Sequence diagram show the user editing in the existing file in this application. Application must be running properly with no failure. Users open the application and thrn open menu. And user open the existing file in this application. Users click on the edit option and submenu of edit option is open. And user editing the existing file is successfully done. Sometimes existing file is not open. Than create the error message in this application. So user again the existing file is opened.

4.3.3 Save File

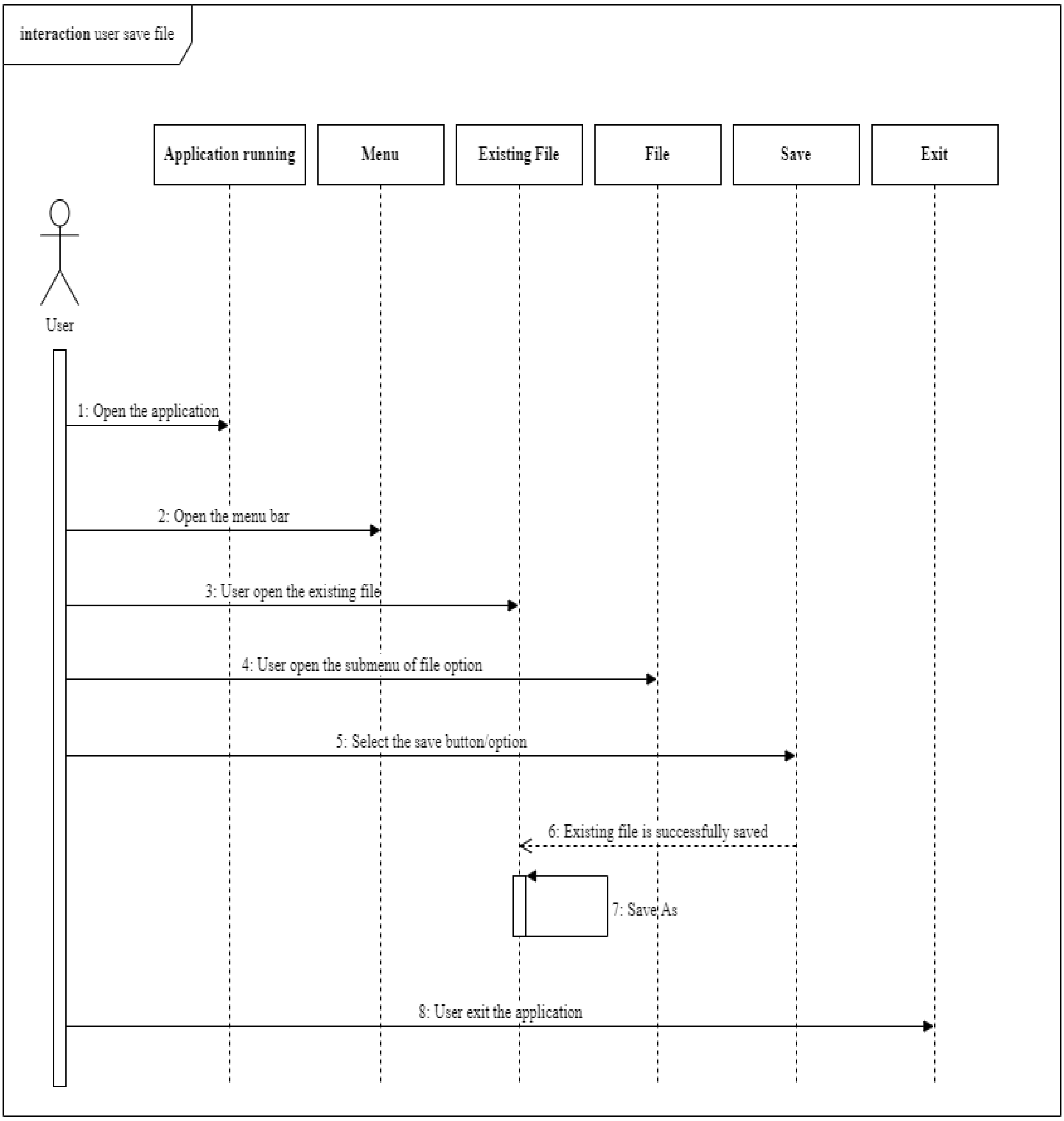

interaction user save file
Application running
Menu
Existing File
File
Save
Exit
User
1: Open the application
2: Open the menu bar
3: User open the existing file
4: User open the submenu of file option
5: Select the save button/option
6: Existing file is successfully saved
7: Save As
8: User exit the application

Figure 4.3.3 Save File

Description

This Sequence diagram show saving of the existing file in this application. The saved file is edit and user click on Save As option. The previous data in this file is replaced with the new data and user saved the file.

4.3.4 File Printing

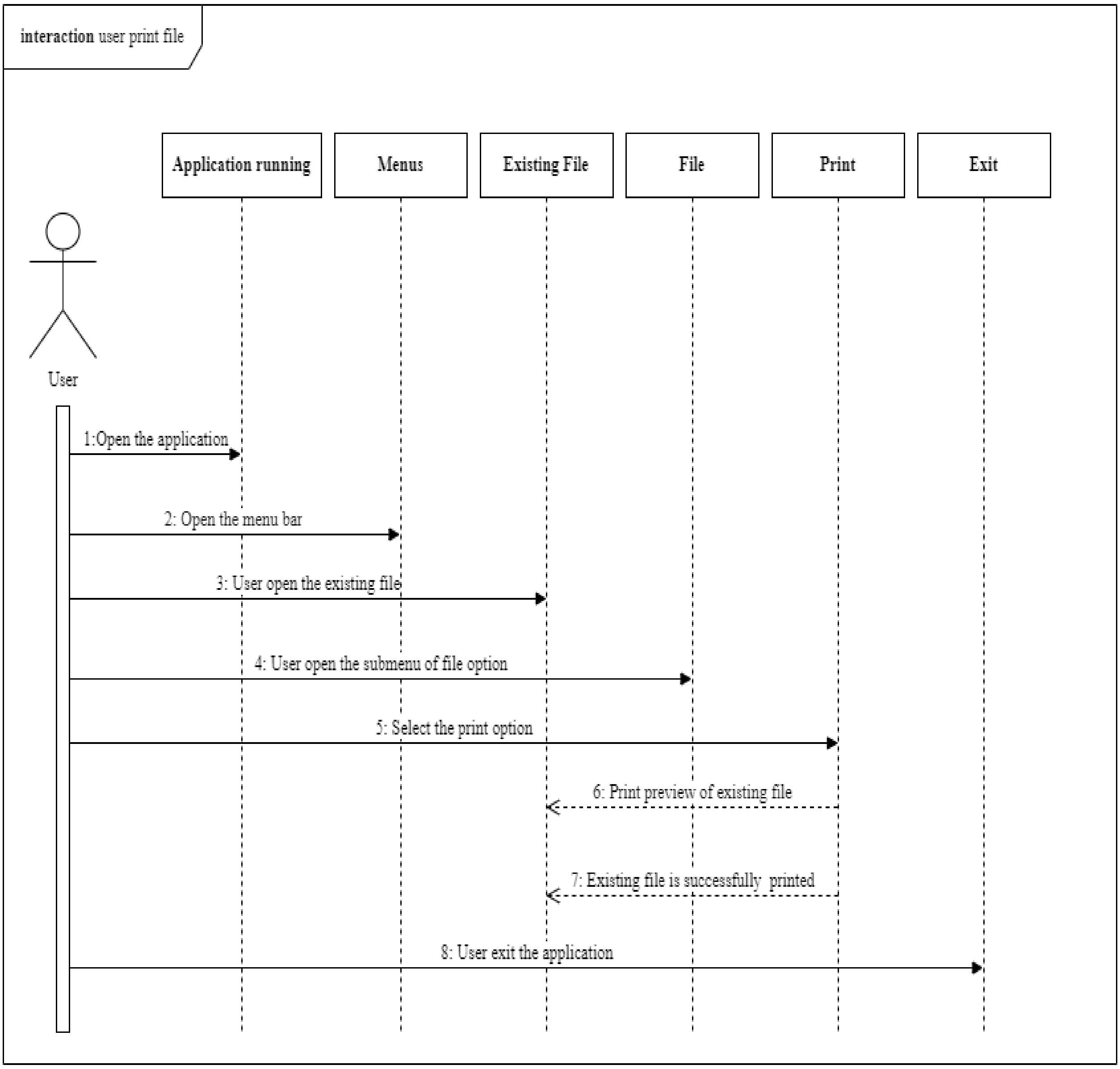

interaction user print file
Application running
Menus
Existing File
File
Print
Exit
User
1:Open the application
2: Open the menu bar
3: User open the existing file
4: User open the submenu of file option
5: Select the print option
6: Print preview of existing file
7: Existing file is successfully printed
8: User exit the application

Figure 4.3.4 File Printing

Description

This Sequence diagram show the user print the existing file in this application.

4.3.5 Sequence Diagrams for All Cases

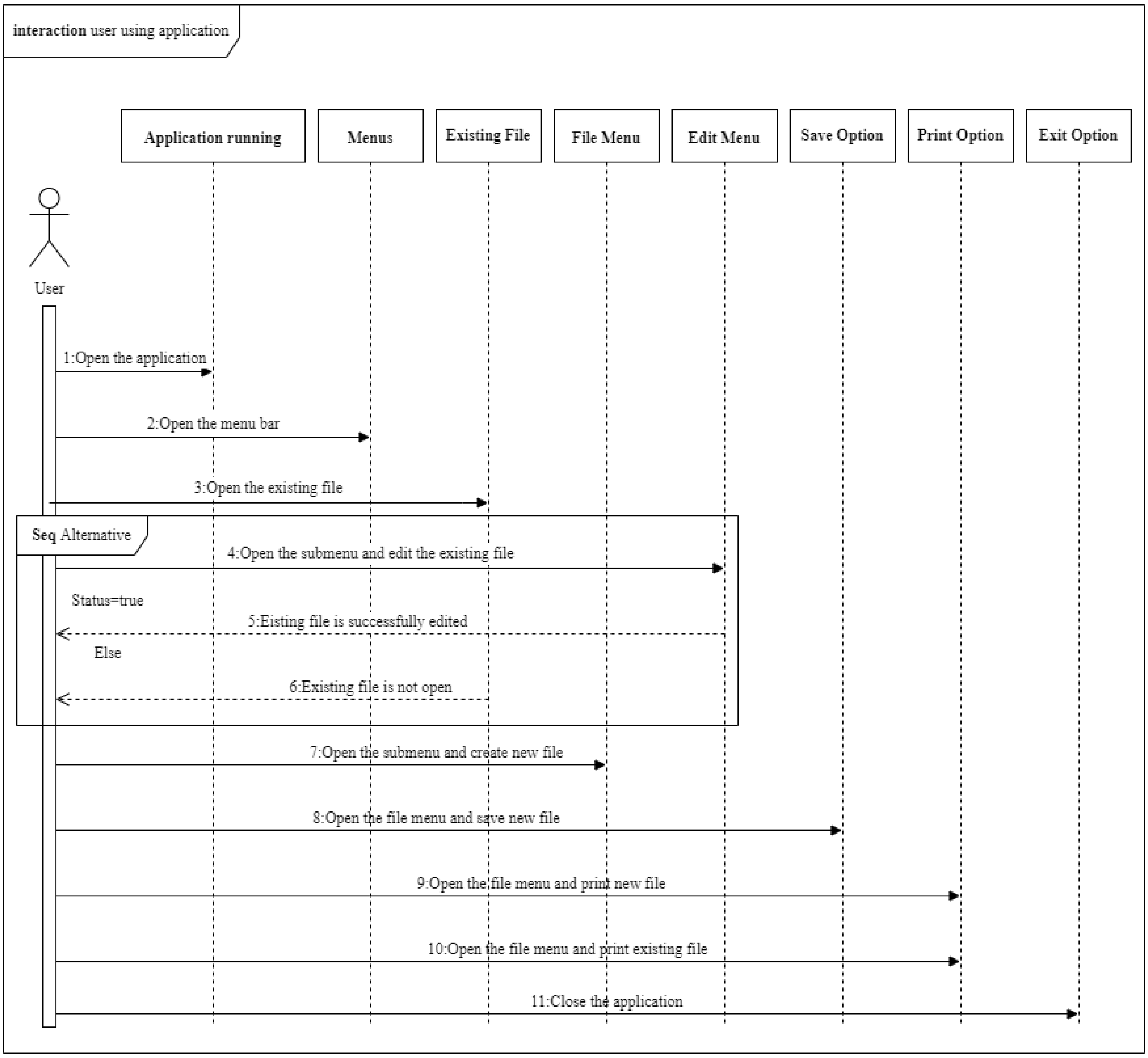

interaction user using application
Application running
Menus
Existing File
File Menu
Edit Menu
Save Option
Print Option
Exit Option
User
1:Open the application
2:Open the menu bar
3:Open the existing file
Seq Alternative
4:Open the submenu and edit the existing file
Status=true
5:Eisting file is successfully edited
Else
6:Existing file is not open
7:Open the submenu and create new file
8:Open the file menu and save new file
9:Open the file menu and print new file
10:Open the file menu and print existing file
11:Close the application

Figure 4.3.5 All Cases

Description

This Sequence diagram show the working of all caaes.

4.4 Activity Diagrams

4.4.1 Activity Diagram

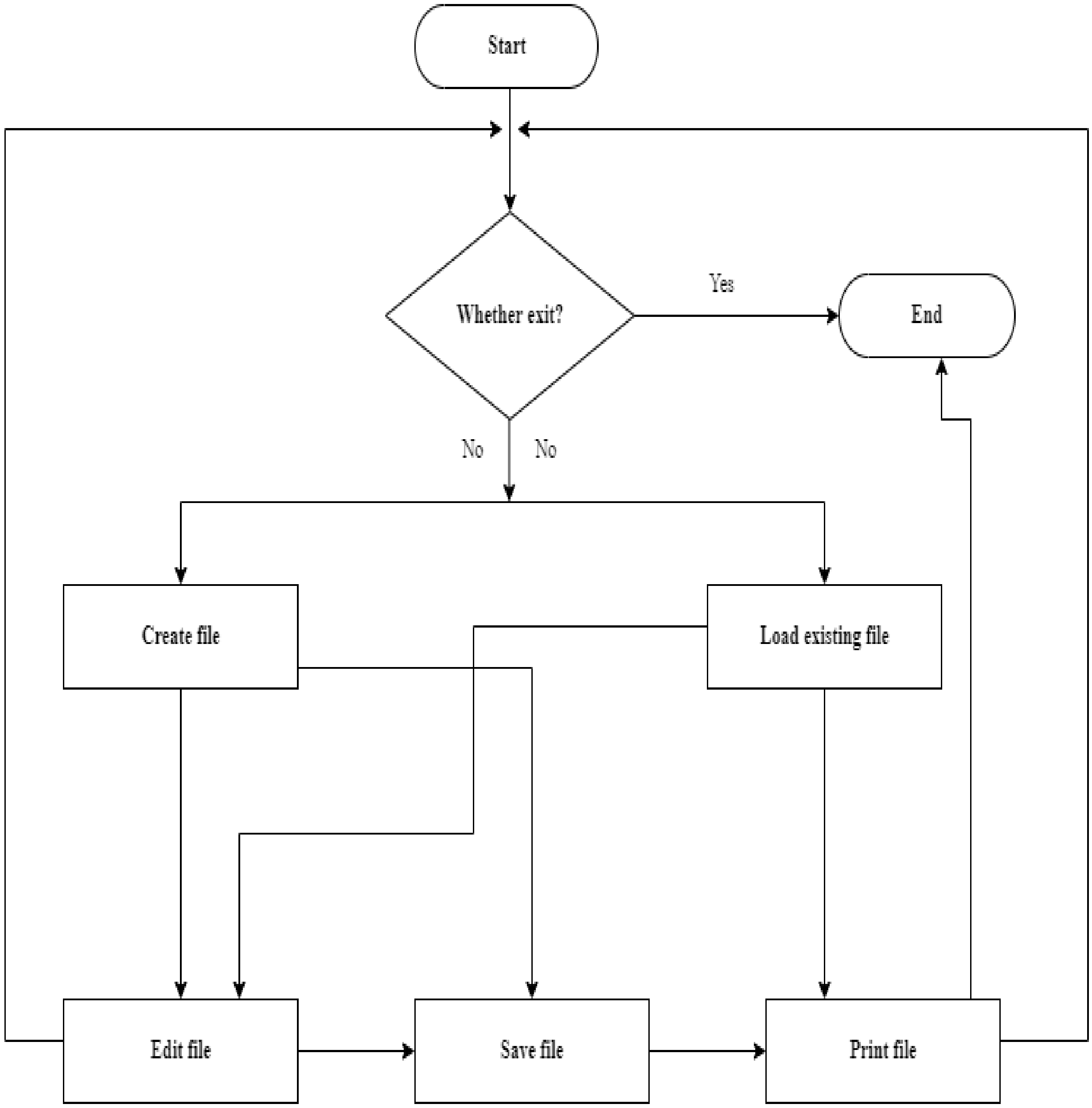


Figure 4.4

4.5 Collaboration Diagram

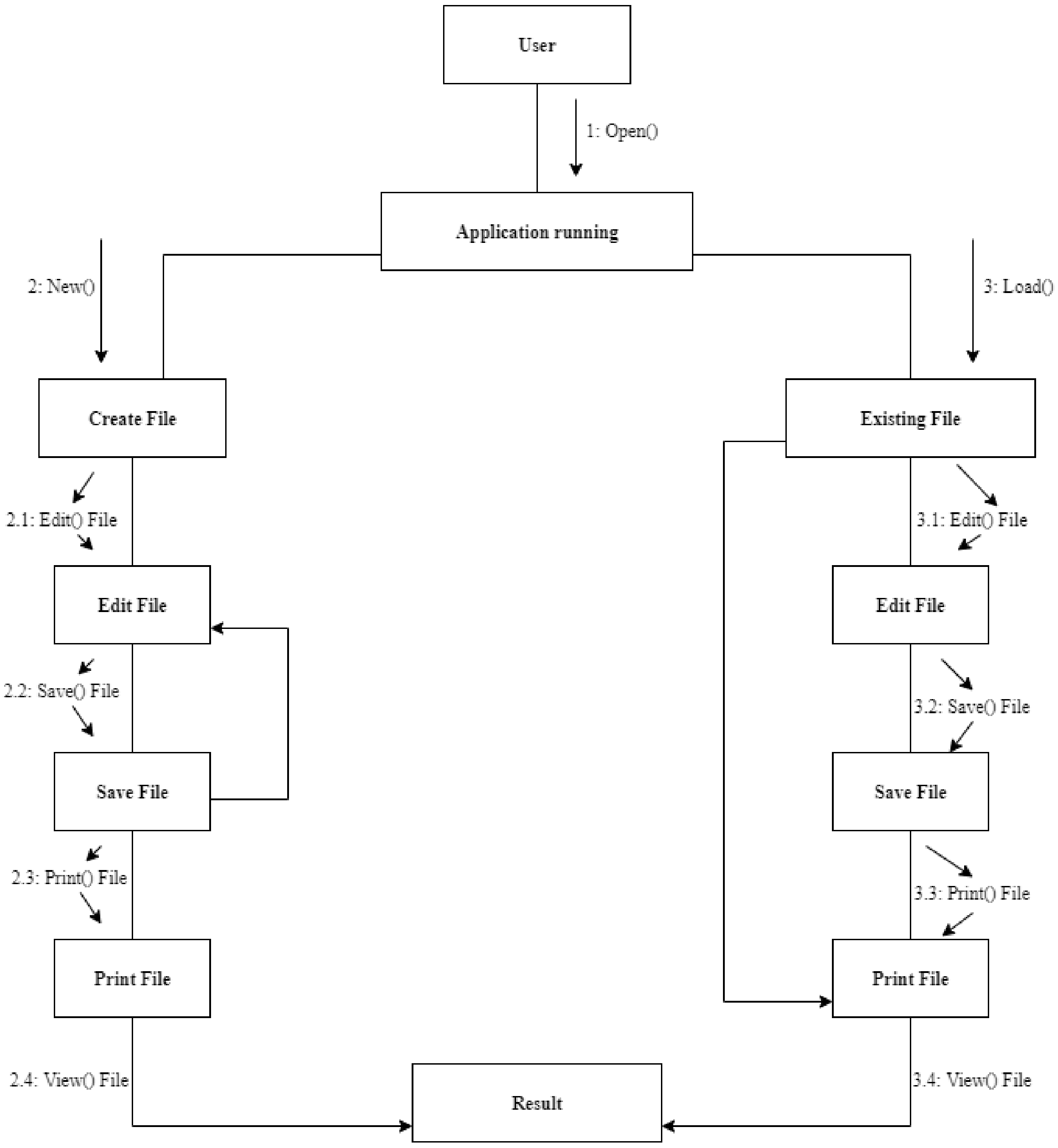


Figure 4.5

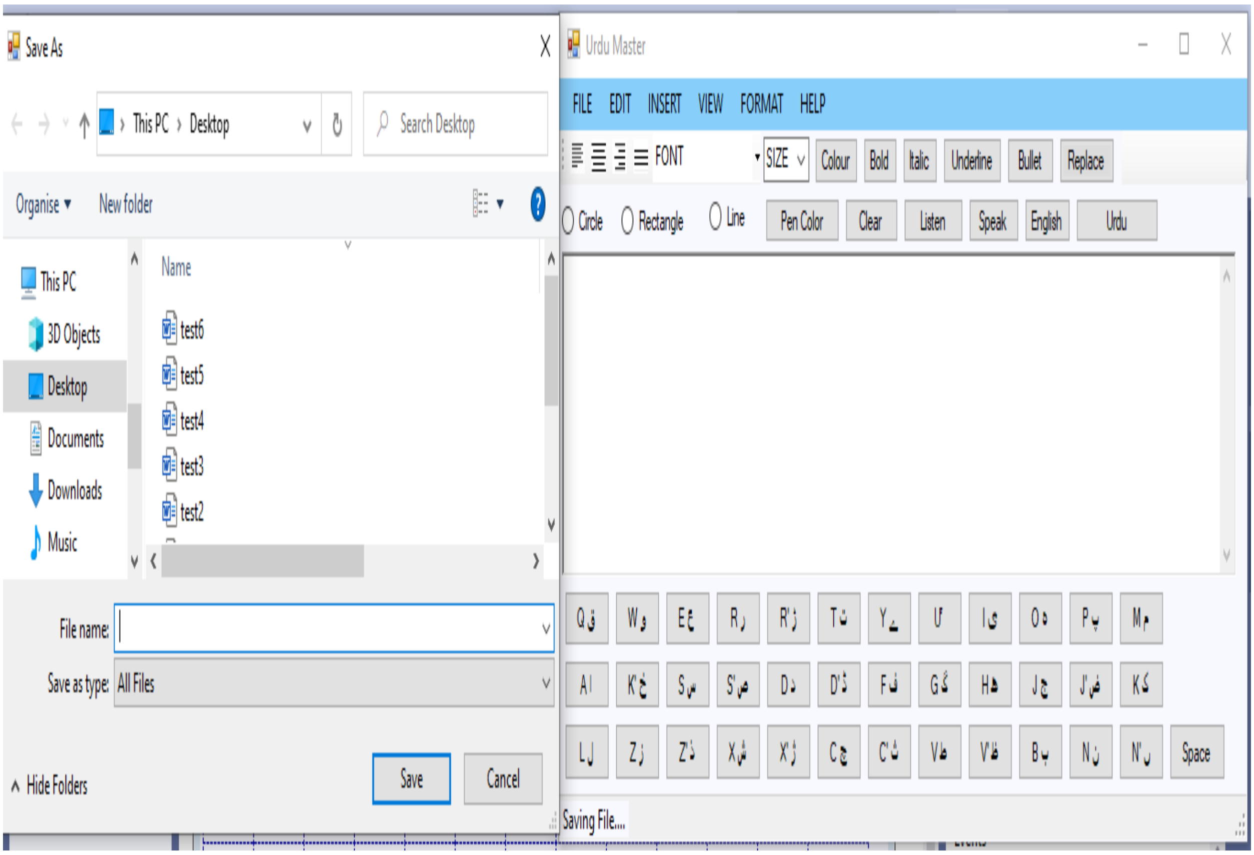
CHAPTER 5

DATABASE

In our project there is no need of separate database. All functionalities required by the software (Urdu Master) are almost done by using the tool and programming language in which we create the software. Following are some descriptions of the techniques we use in construction of our desktop application.

5.1 File Storage:

Urdu master is a desktop application that is used as a Word processing software. It works similar to other word processing software's like Microsoft Word. Therefore, we also need to store files in computer system which contains different types of data. For this purpose, we don't need a separate database to store such files.



File name:

Save as type: All Files

Saving File...

Figure 5.1.1 Saving a file

It is the functionality of Visual Studio software that helps to save such files in computer system where we want to save these files like Microsoft Word saves files in computer system, without the need of separate database system. Visual Studio has a function SaveFileDialog that is used to save files in computer system without the need of database.

Similarly, we can also save pictures or images by using this application in the computer system without the need of database. Again, it is the functionality of Visual Studio that helps to store pictures or images in the computer system. We don’t need a separate database for this functionality.

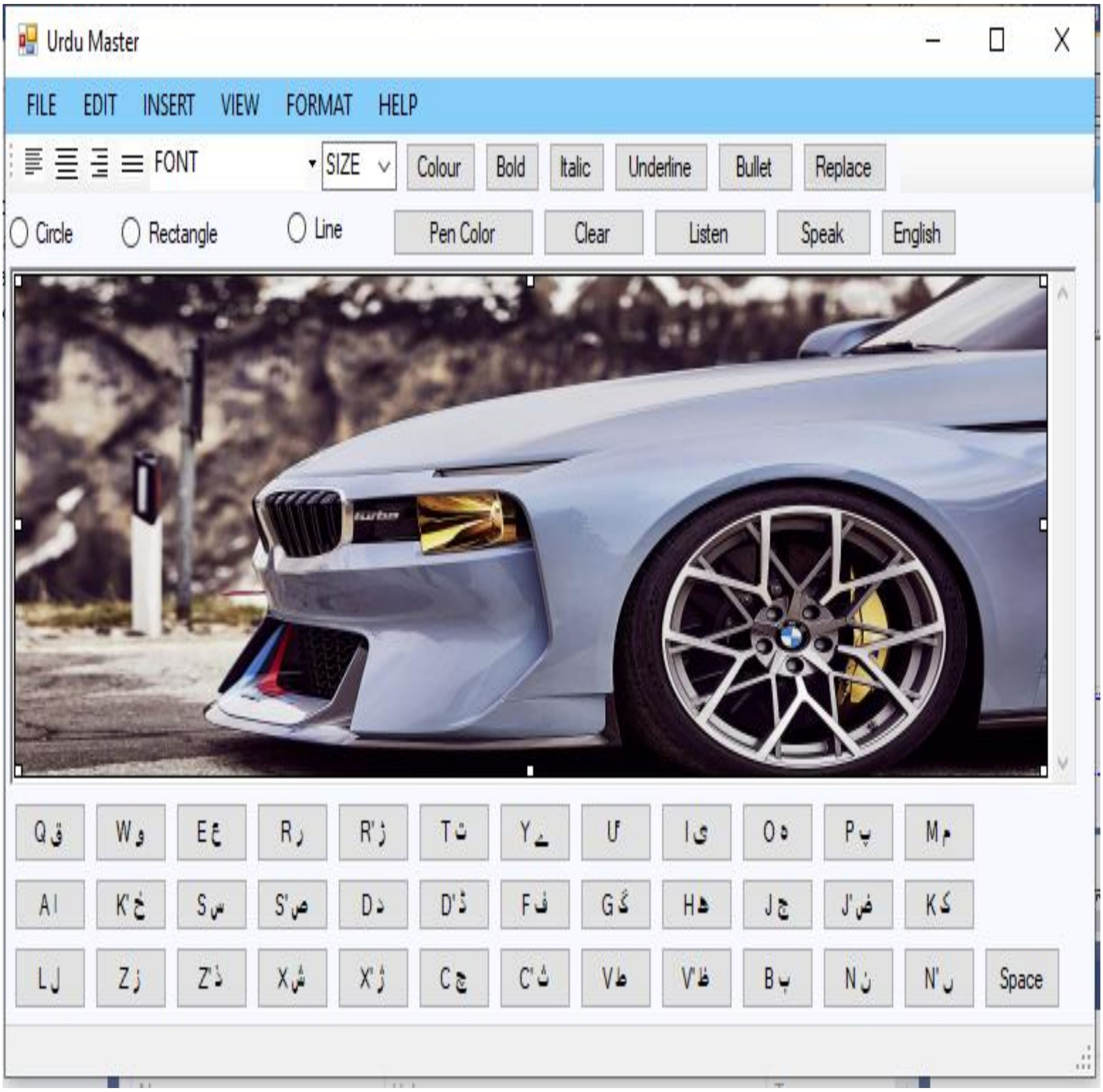
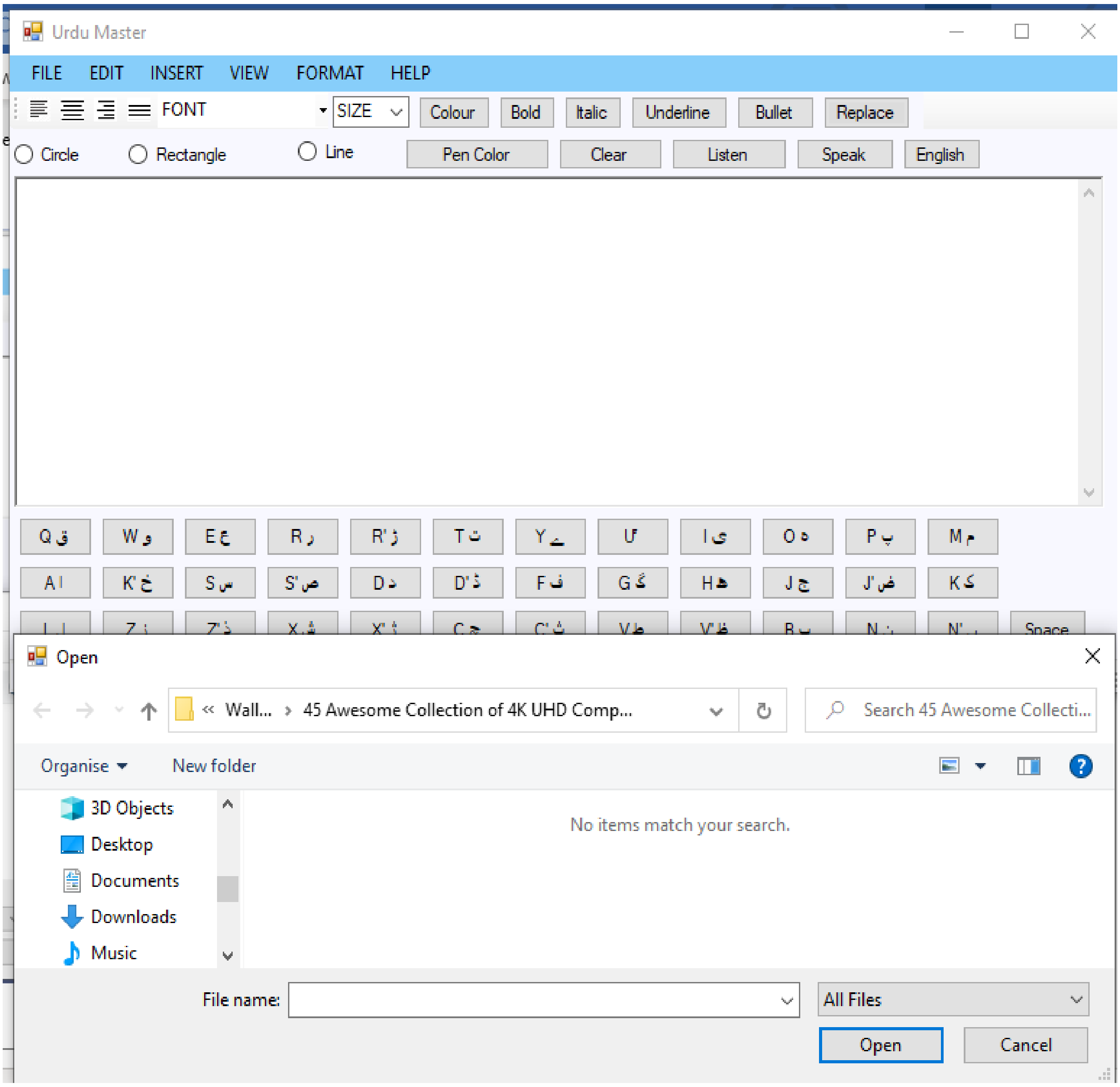


Figure 5.1.2 Saving Picture

5.2 Opening File:

As discussed above Urdu Master is a word processing application. Therefore, we also need to open a file that is already save in a computer system. We don’t need to use database to open files in our software. It is also the functionality of Visual Studio software that helps to open files containing different types of data in our desktop application. Visual Studio has a function named as OpenFileDialog, which helps to open files in our constructed desktop application.

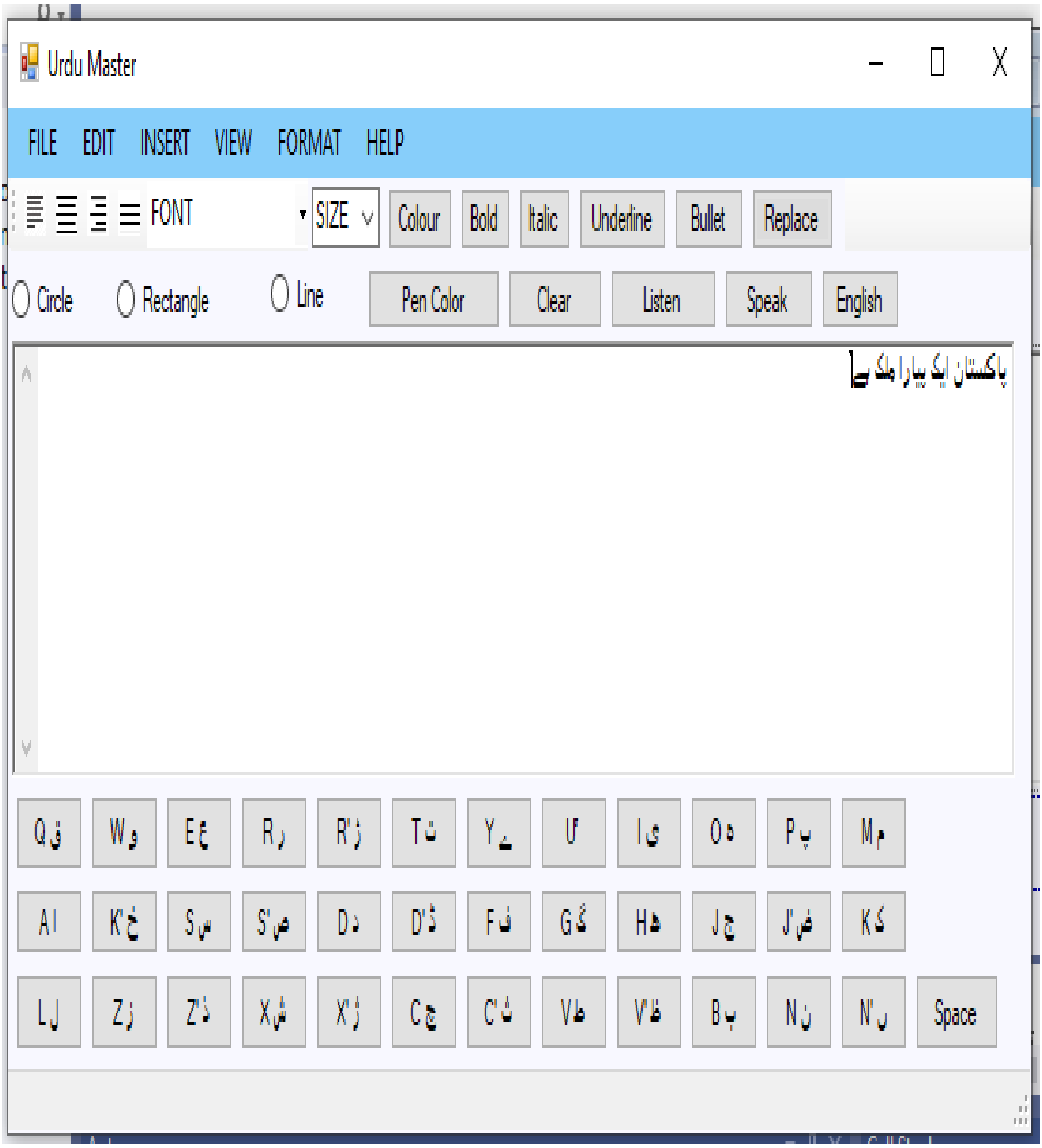


No items match your search.

Figure 5.2 Opening File

5.3 Text Area:

As discussed earlier, Urdu Master is a word processing application. So we also need to type in it. A question arise how we type in Urdu language and where we type in. Again, it is the functionality of tool that we use to construct the application. Visual Studio helps to create a text area where we write and a mechanism to write Urdu language.



پاکستان ایک پیارا ملک ہے

Figure 5.3 Text Area

5.4 Urdu Keyboard:

We create buttons, by clicking on these buttons we get Urdu characters in text area. Therefore, we can say that we don't need to use database for typing or writing in Urdu language as this facility is provided by Visual Studio. We get only basic urdu characters by using this technique.

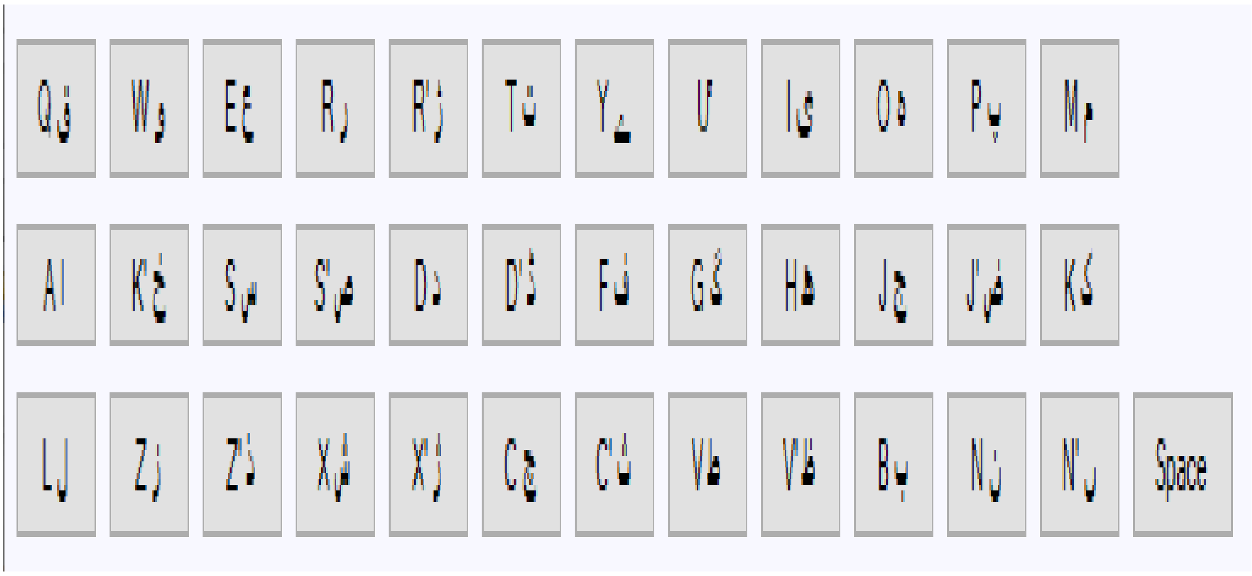
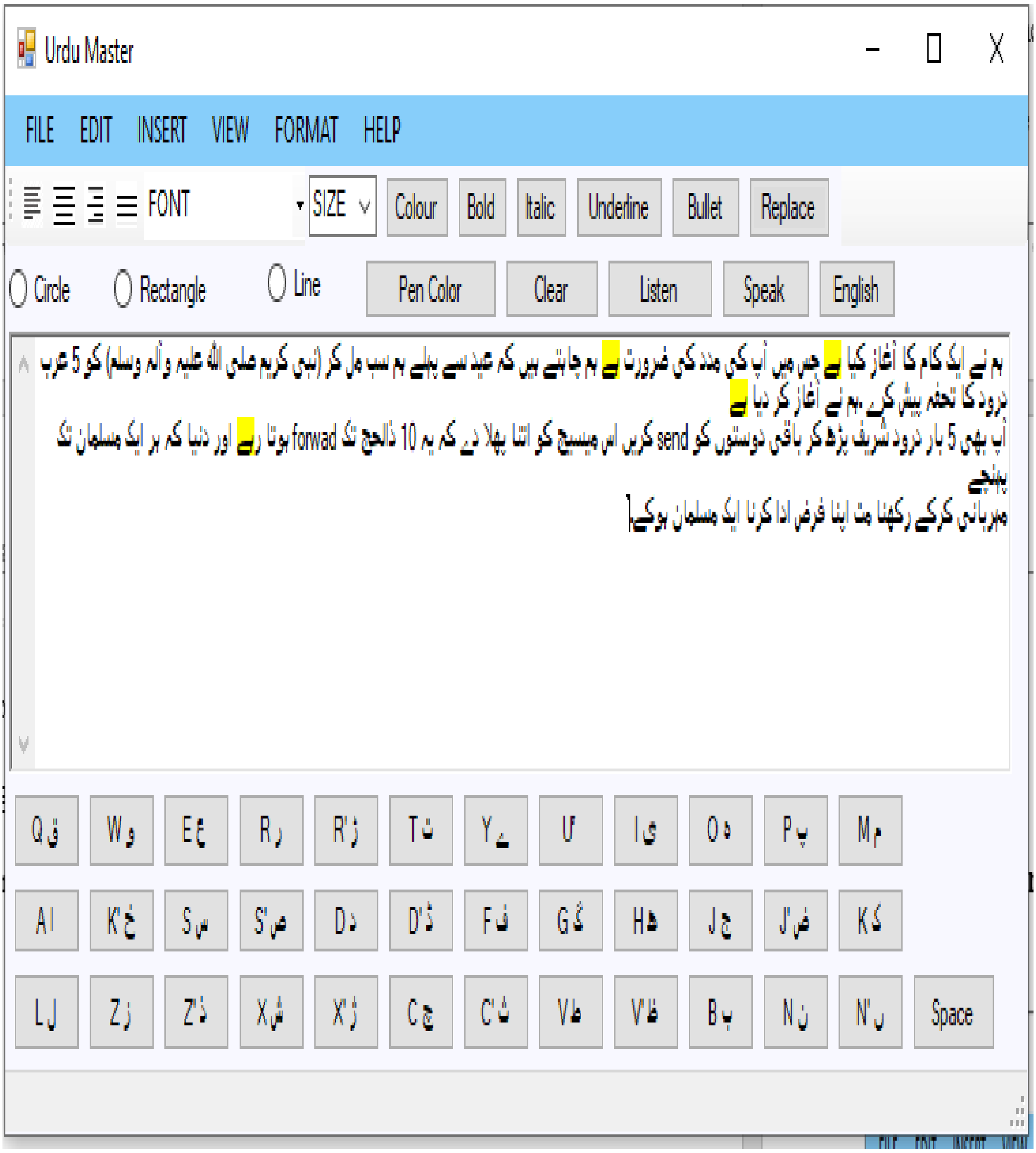


Figure 5.4 Urdu Keyboard

5.5 Searching:

As discussed before, Urdu Master is a word processing application. We also need to search a single character and a complete word like we search in Microsoft Word. We don't need to store file in database to search a character or word in it. It is the functionality of Visual Studio to save file in a computer system and search a character or word in a file. We don't need database for this functionality.



ہم نے ایک کام کا آغاز کیا ہے جس میں آپ کی مدد کی ضرورت ہے ہم چاہتے ہیں کہ عید سے پہلے ہم سب مل کر (نبی کریم صلی اللہ علیہ و آلہ وسلم) کو 5 عرب
درود کا تحفہ پیش کرے۔ ہم نے آغاز کر دیا ہے
آپ بھی 5 بار درود شریف پڑھ کر باقی دوستوں کو send کریں اس میسج کو اتنا پھیلا دے کہ یہ 10 ذالحج تک forwad ہوتا رہے اور دنیا کہ ہر ایک مسلمان تک
پہنچے
مہربانی کرکے رکھنا مت اپنا فرض ادا کرنا ایک مسلمان ہوکے۔

Figure 5.5 Searching

5.6 Text to speech:

We use text to speech functionality in our application. By using this functionality, we can listen text that we write in the application. The text to speech is also the built-in functionality of the Visual Studio software that we use to build the application. We do not need database for this purpose as stated above it is the functionality of the Visual Studio software.

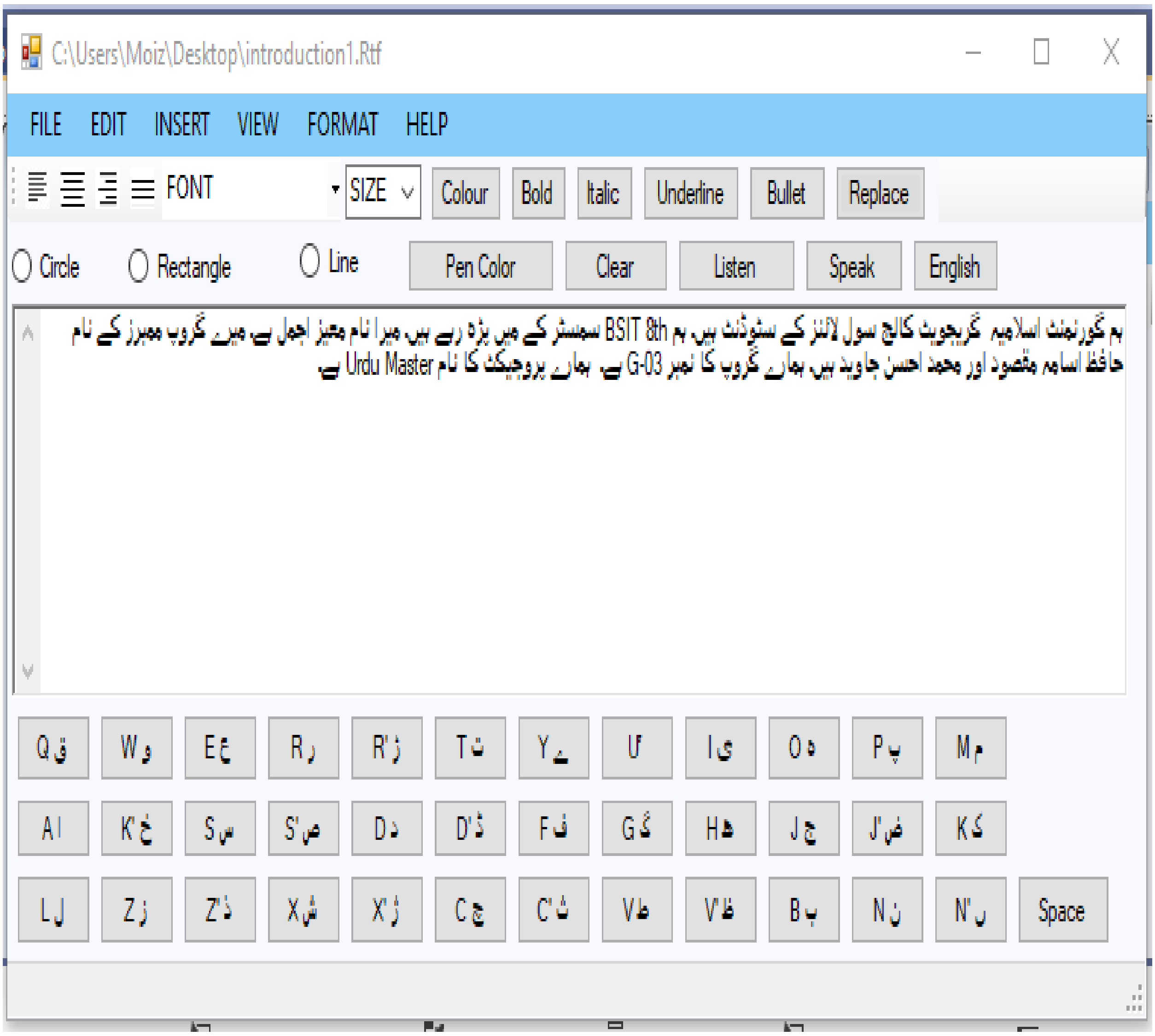
The purpose of this functionality is to help the visually impaired people by offering a computer-generated spoken voice that would “read” text to the user. This functionality also allows users to see text that they writ, hear it and read it aloud simultaneously.

This technique is also used to help people having trouble in reading. People with learning disabilities who have difficulty in reading large amounts of text due to dyslexia or other problems really benefit from this technique, offering them an easier option for experiencing writing content.

CHAPTER 6

IMPLEMENTATION

6.1 Main User Interface



ہم گورنمنٹ اسلامیہ گریجویٹ کالج سول لائنز کے سٹوڈنٹ ہیں ہم BSIT 8th سمسٹر کے میں پڑہ رہے ہیں میرا نام معیز اجمل ہے میں گروپ ممبرز کے نام
حافظ اسامہ مقصود اور محمد احسن جاوید ہیں ہمارے گروپ کا نمبر G-03 ہے ہمارے پروجیکٹ کا نام Urdu Master ہے

Figure 6.1

6.2 File Menu

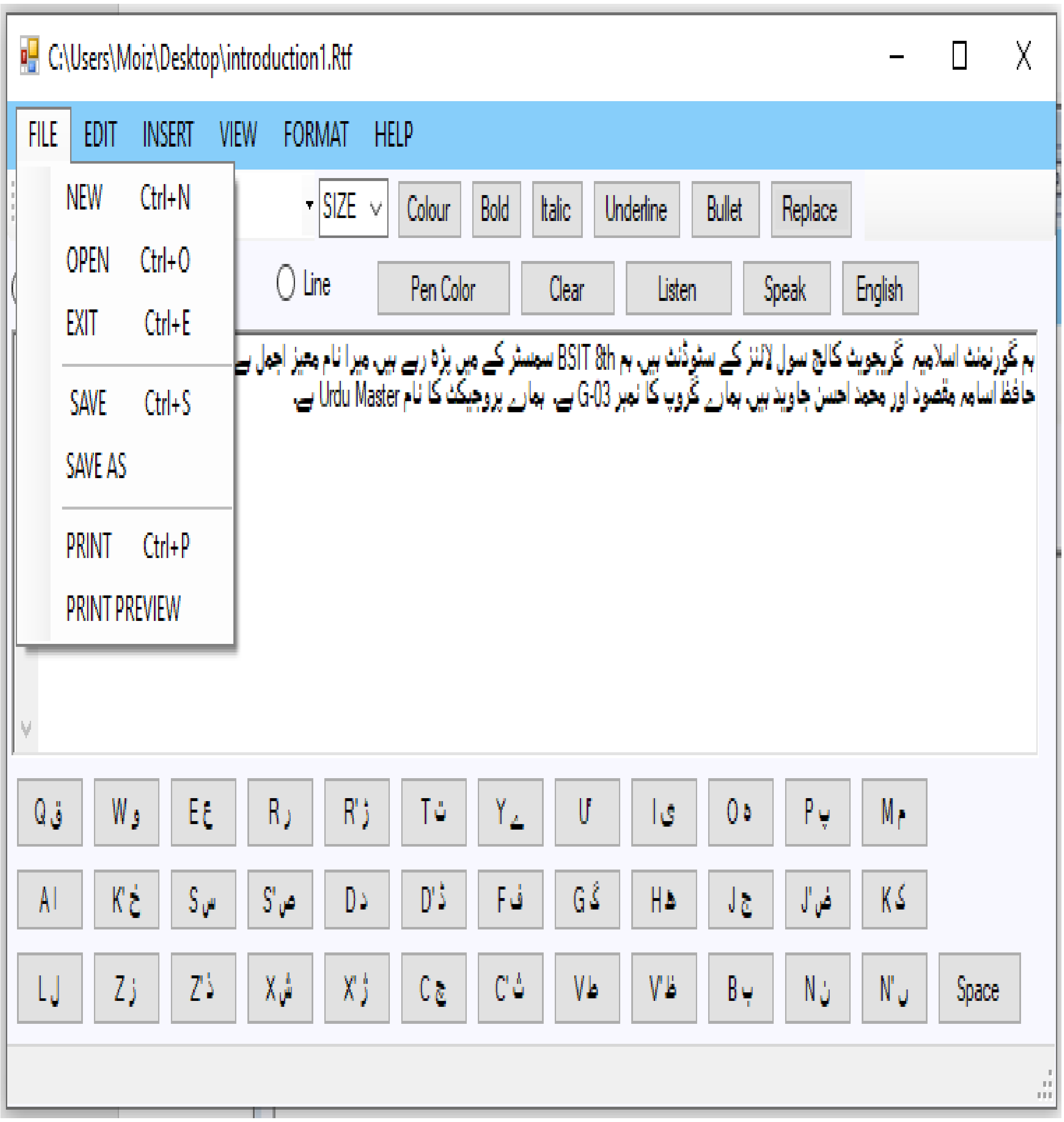


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Figure 6.2

6.3 Insert Menu

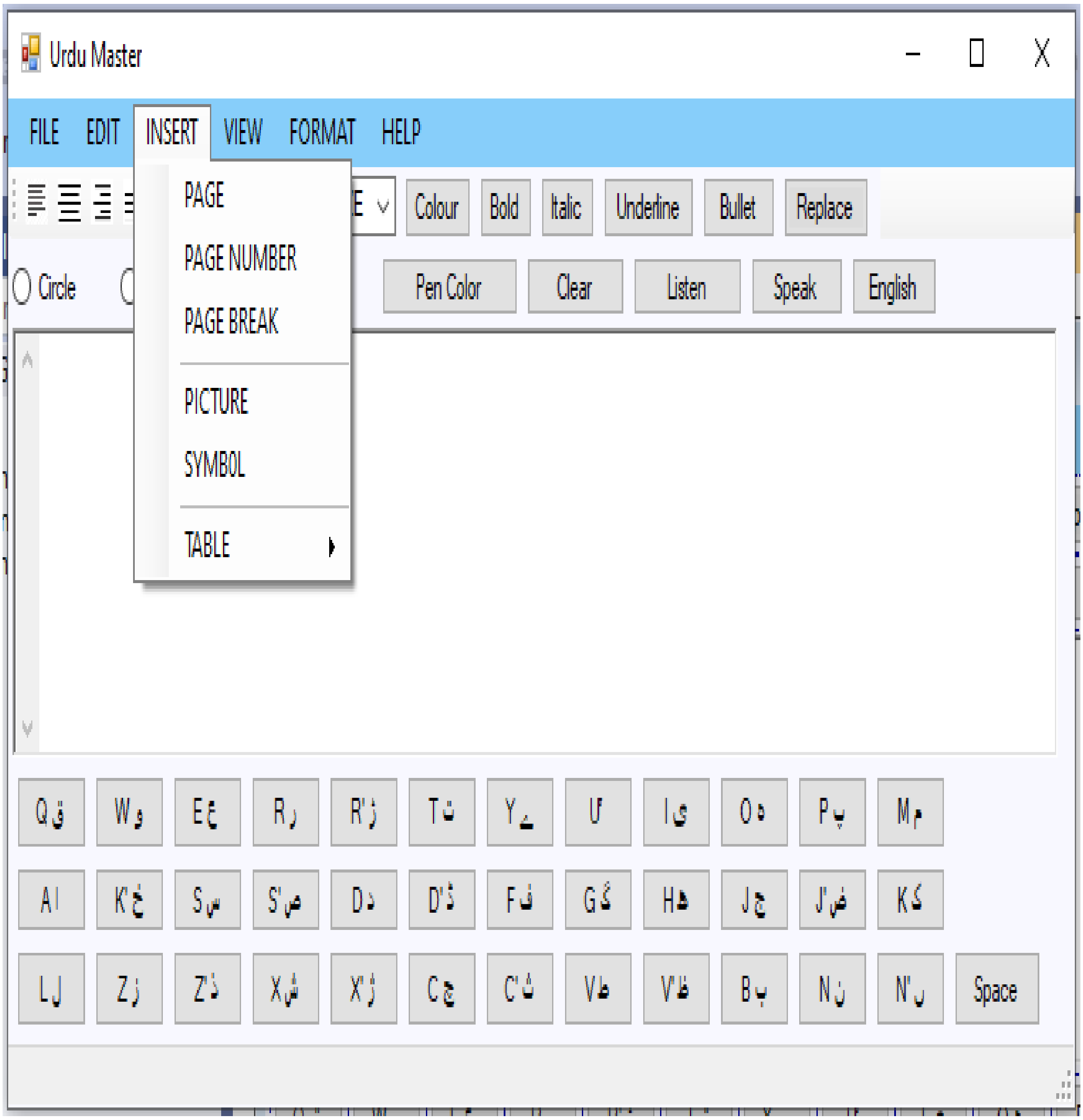

Figure 6.3

6.4 Edit Menu

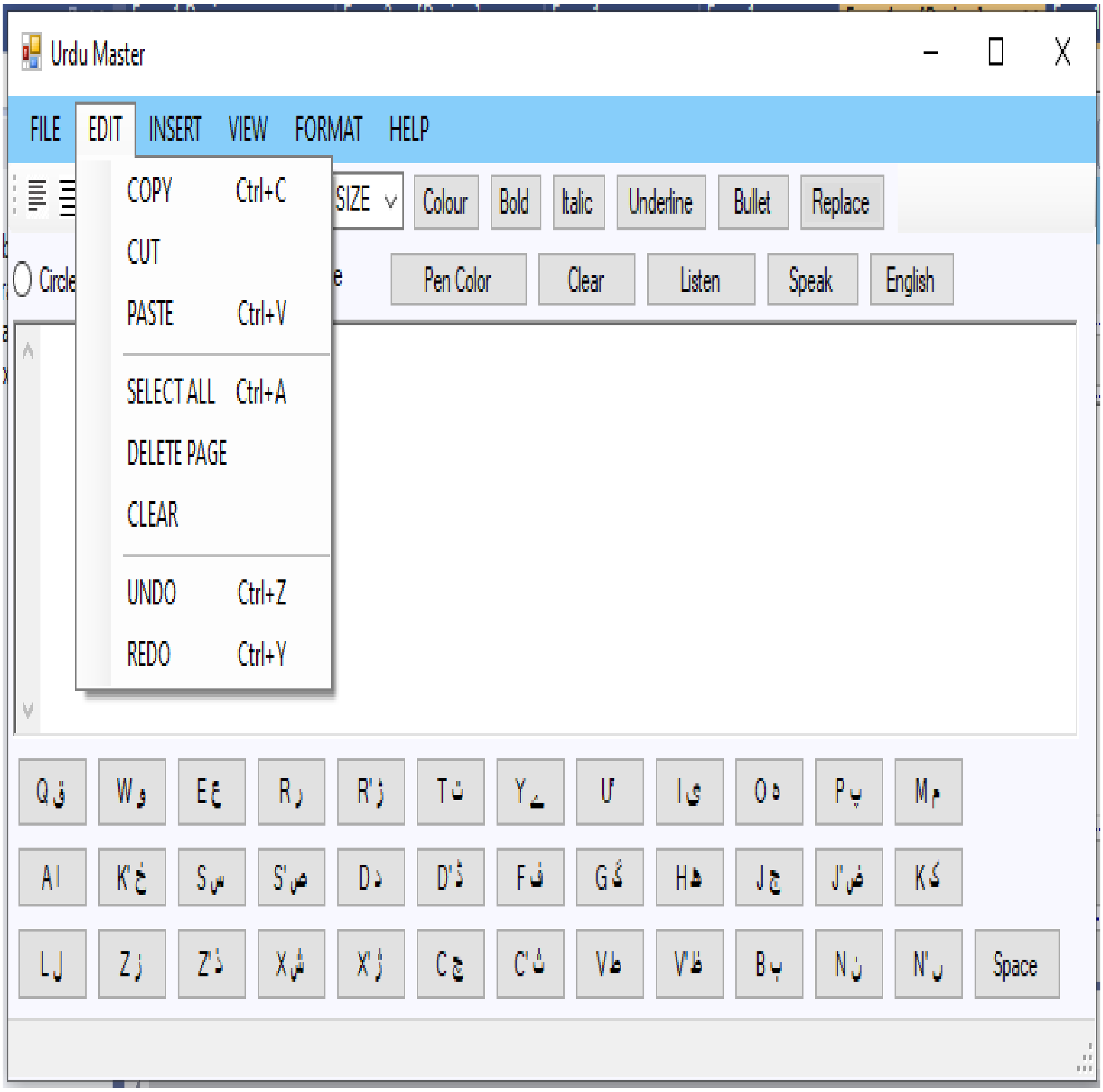

Figure 6.4

6.5 View Menu

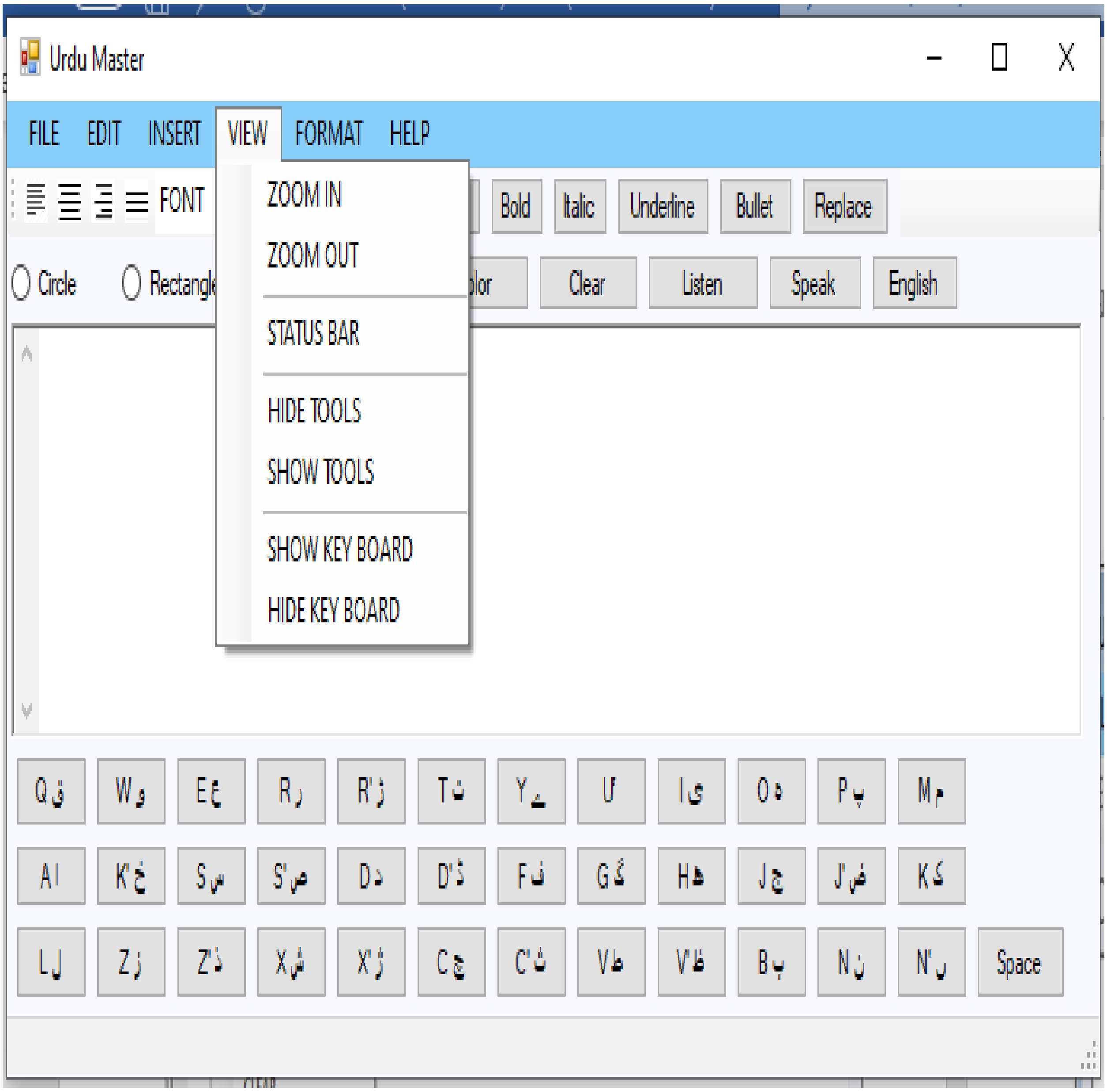

Figure 6.5

6.6 Format Menu

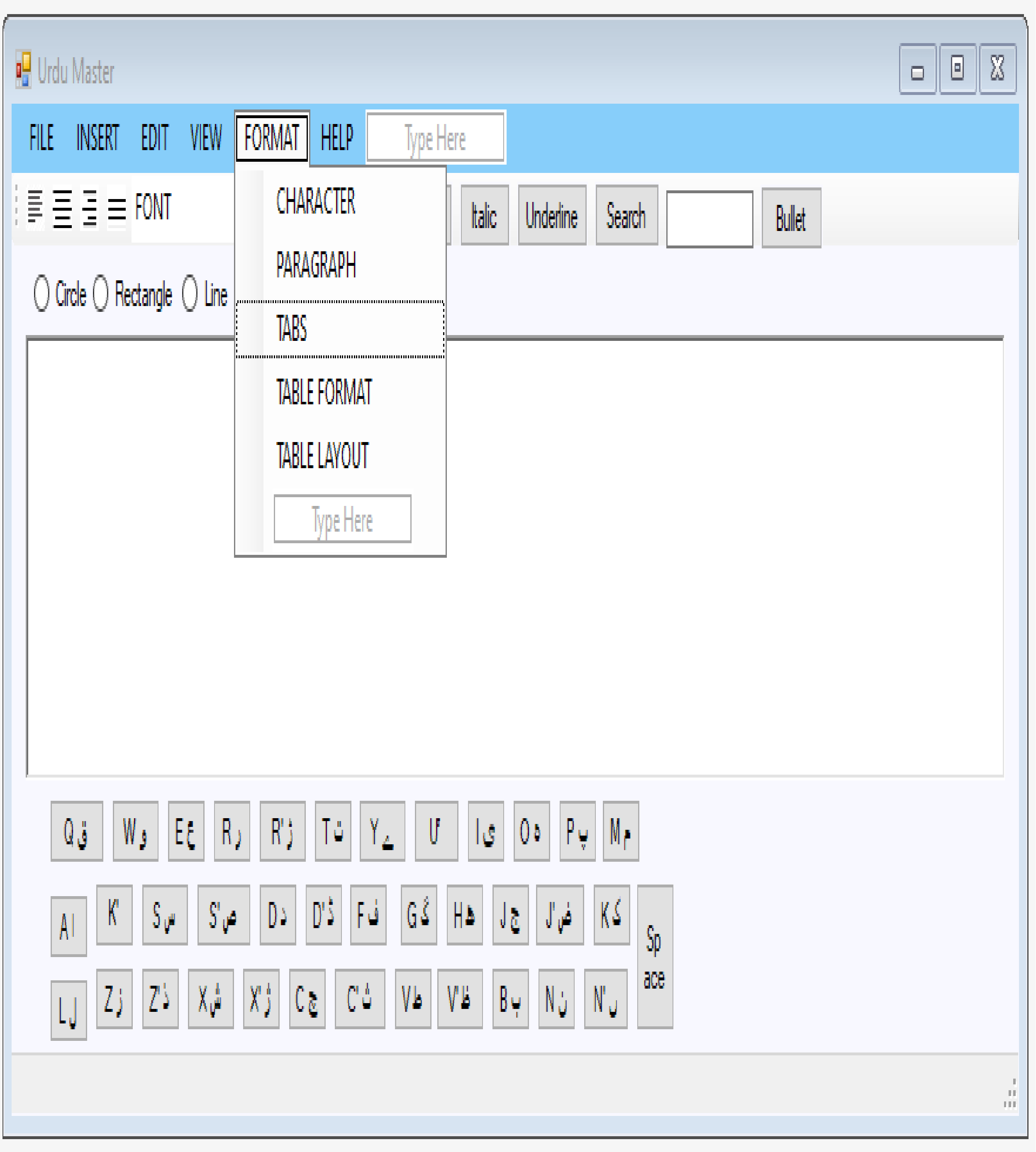

Figure 6.6

6.7 Help Menu

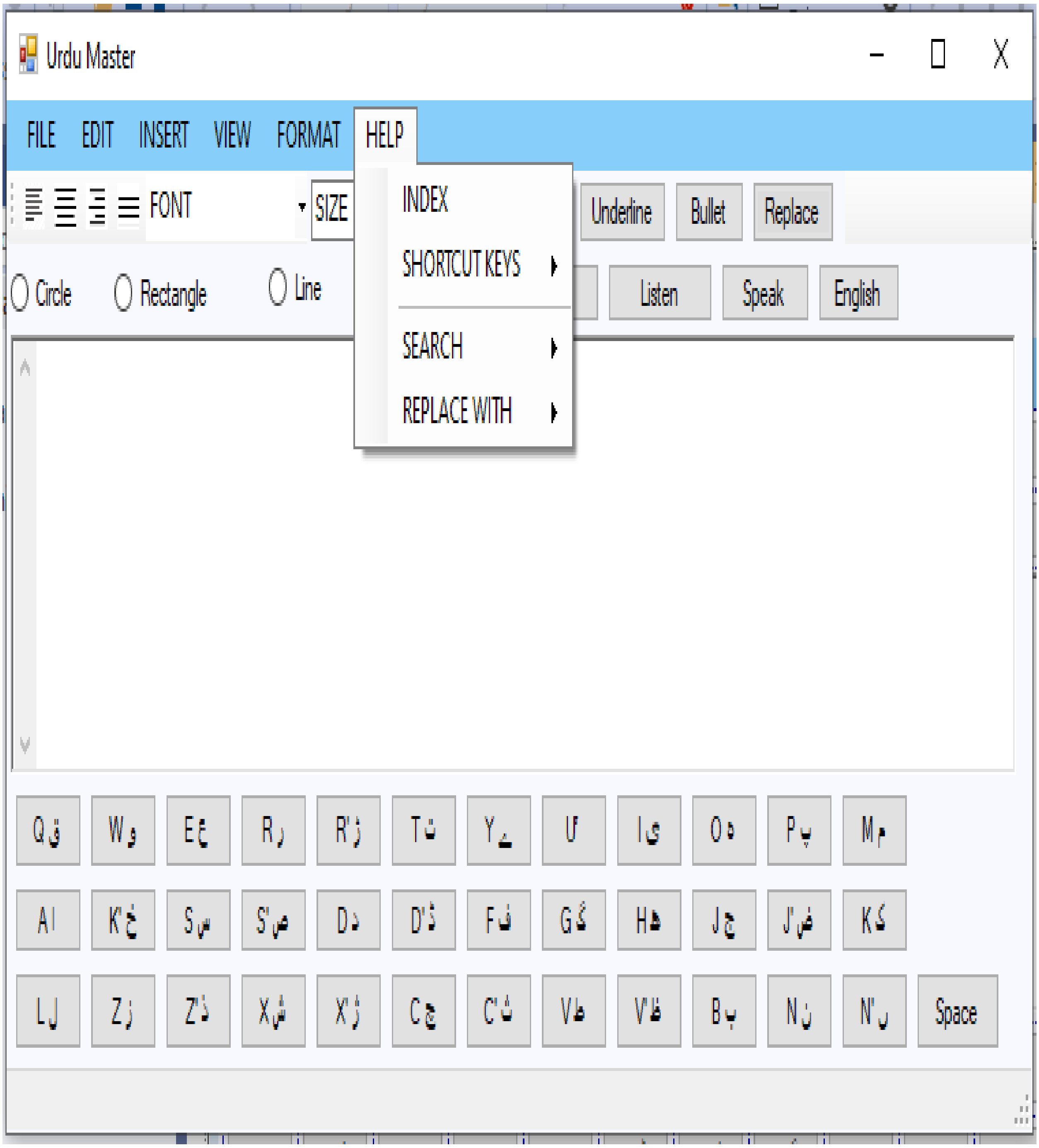

Figure 6.7

6.8 Font Style

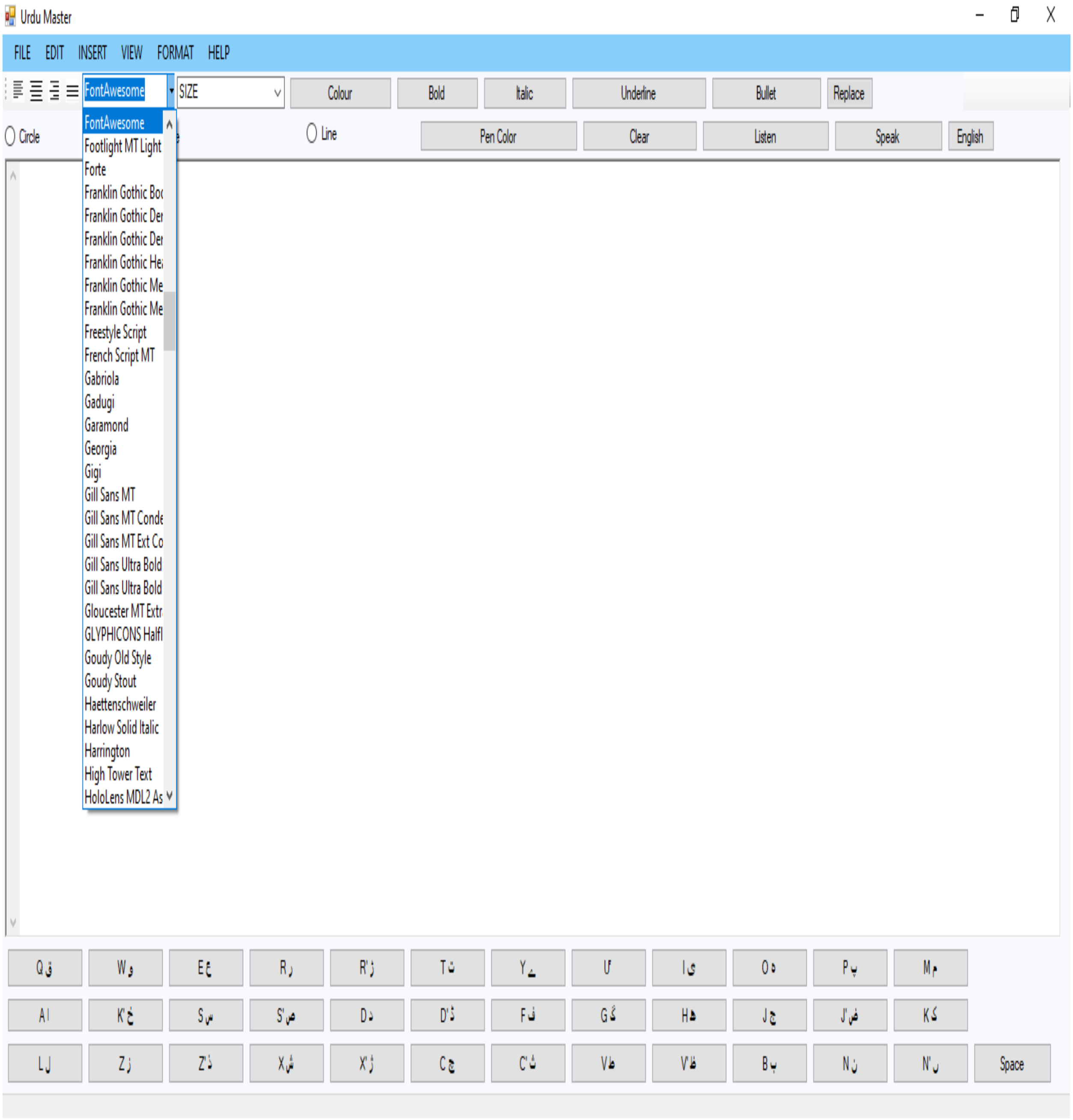

Figure 6.8

6.9 Font Size

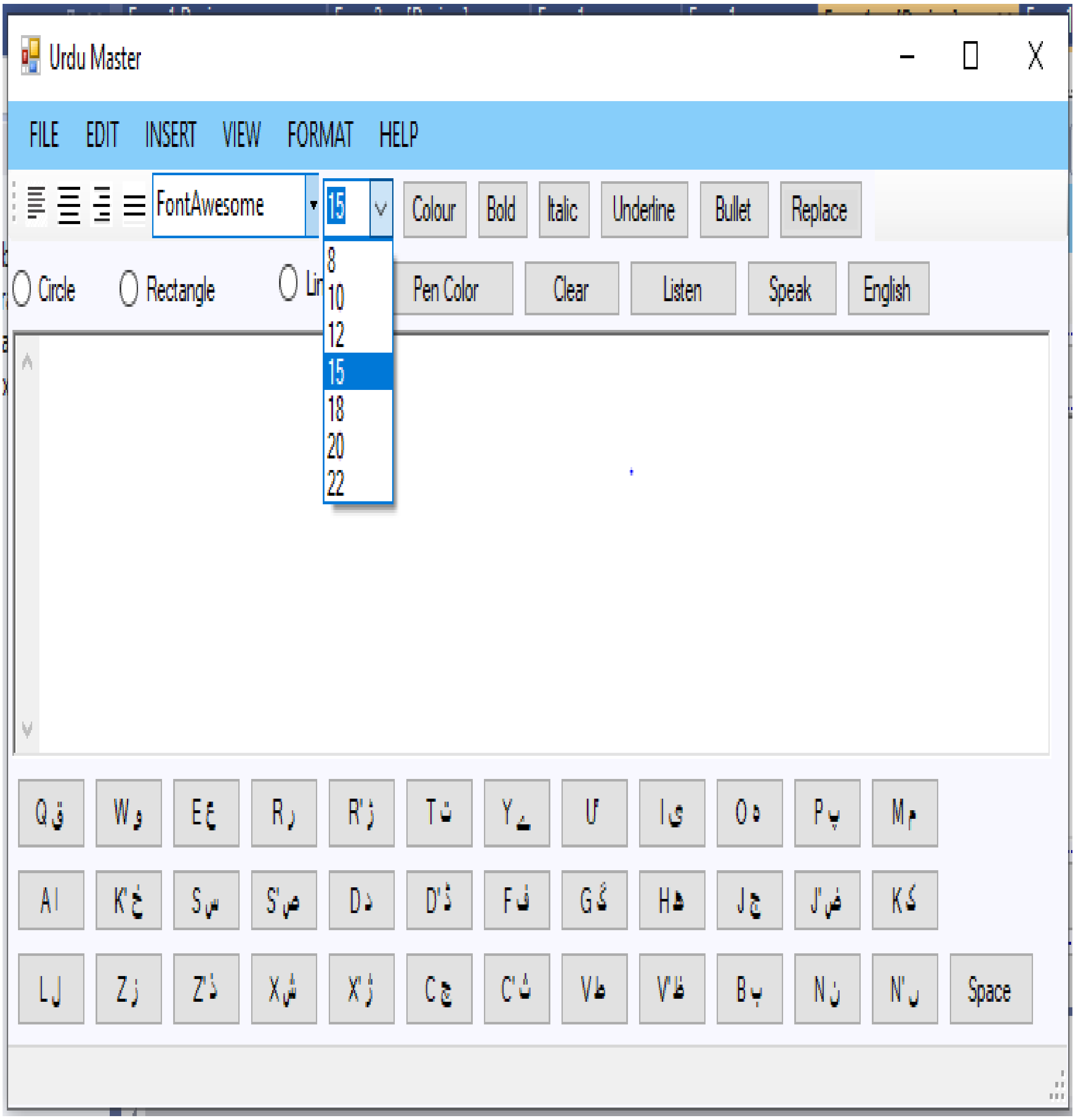

Figure 6.9

6.10 Color

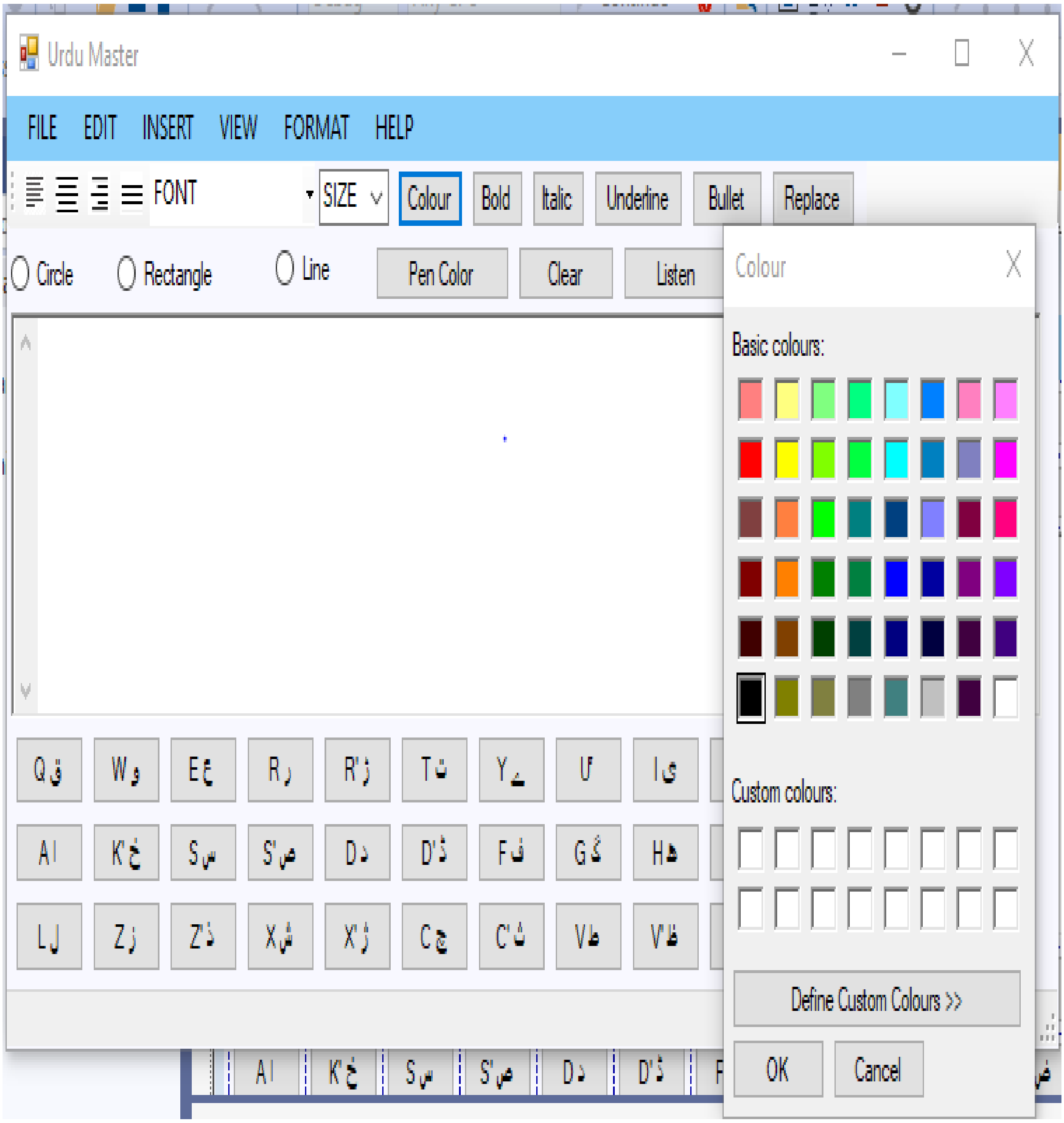

Figure 6.10

CHAPTER 7

TESTING AND VERIFICATION

Software testing is an essential part of software development to verify the functionality of the software because according to the “Pareto Rule”, 80% of errors come from 20% of program components. The techniques often used to test the software under test against the functional or non-functional requirements acquired from the project, are known as software testing techniques. Each testing method helps in the detection of a certain fault. Techniques that can detect structural flaws, for example, may not be able to detect flaws in the end-to-end flaws. Hence, multiple testing techniques are applied in the testing of “Urdu Master” to conclude it with acceptable quality.

7.1 Black Box Testing

Black box testing involves testing a system in which we have no prior knowledge of its internal workings. A tester provides an input and observes the output generated by the system under test. This makes it possible to identify how the system responds to expected and unexpected user actions, its response time, usability issues and reliability issues.

Black box testing is a powerful testing technique because it exercises a system end-to-end. Just like end-users “don’t care” how a system is coded or architected, and expect to receive an appropriate response to their requests, a tester can simulate user activity and see if the system delivers on its promises.

We tested “Urdu Master” with this technique to check and verify the working of components of the software.

7.2 Compatibility Testing

Compatibility testing is a software testing which is performed on an application to check its compatibility on different platforms. This testing is done only when the application becomes stable. The purpose of this compatibility test is to check the developed software application functionality on different software, hardware platforms etc . We have tested our project “Urdu

Master ” in different browsers such as Internet Explorer, Google Chrome, Microsoft Edge etc and on different devices with different operating systems such as Windows OS without any issue.

7.3 Performance Testing

Performance testing is a testing technique that determines the speed, scalability, and stability of an application under a given workload. It also helps to ensure the quality of the software and makes the application ready to be released into the market. We tested “Urdu Master” with this technique to check the processing speed, data transmission speed, and response times of the system.

We tested “Urdu Master” with this technique to check the processing speed, stability of application, data transmission speed, and response times of the system.

7.4 Usability Testing

Usability testing is a testing method for measuring how easy and user friendly a software application is. The main focus of usability testing is on user’s ease of using application and flexibility of application. We can also say that usability testing is a method used to evaluate how easy a website is to use.

We tested “Urdu Master” with this technique to uncover usability flaws and testing easiness of application.

7.5 White Box Testing

White box testing techniques analyze the internal structure of the used data structures, internal design, code structure, and working of the software rather than just the functionality as in black box testing. It is also called glass box testing or clear box testing or structural testing. We have tested our project “Urdu Master” with this technique to uncover the logical and structural flaws of the system like logical errors, design errors, syntax errors etc.

7.6 Test Cases And Results

A **Test Case** is a set of actions executed to verify a particular feature or functionality of your software application. Test Case acts as the starting point for the test execution, and after applying a set of input values, the application has a definitive outcome and leaves the system at some end point or also known as execution postcondition.

The Test Cases we use contains test steps, test data, precondition, postcondition, expected result, actual result developed for specific test scenario to verify any requirement. These test cases includes specific variables or conditions, using which a tester can compare expected and actual results to determine whether a software product is functioning as per the requirements of the customer or not.

Test Case Name: Creation of New File

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-01
Test Case Description	Is a new file create or not?	
Test Steps	1. Start the application 2. Go to menu bar 3. Click on file menu 4. Press **New** button or use shortcut key (**Ctrl + N)**	
Test Data	New file create or not?	
Pre-Condition	The application is not running successfully.	
Post-Condition	New file will open.	
Expected Result	New file must create.	
Actual Result	New file is created.	
Status	Pass	

Table 7.1 Test Case of Creation of file

Test Case Name: Opening a File

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-02
Test Case Description	Is a file open or not?	
Test Steps	1. Start the application. 2. Go to menu bar 3. Click on file menu 4. Press **Open** button or press shortcut key **(Ctrl + O)**	
Test Data		
Pre-Condition	File does not exist	
Post-Condition	File will open	
Expected Result	Required file should open	
Actual Result	Required file opens	
Status	Pass	

Table 7.2 Test Case of Opening a file

Test Case Name: Exit from application

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-03
Test Case Description	The user must able to exit from application	
Test Steps	1. Go to menu bar 2. Open file menu 3. Click on **Exit** button or press shortcut key (**Ctrl + X)**	
Test Data		
Pre-Condition	Application is not running	
Post-Condition	Exit from application	
Expected Result	Exit from application must happens	
Actual Result	Exit from application	
Status	Pass	

Table 7.3 Test Case of Exit from application

Test Case Name: Save

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-04
Test Case Description	The written or edit file must save	
Test Steps	1. Start the application 2. Open a new file and write in it 3. Open an exist file and edit it 4. Go to menu bar and open file menu 5. Click on **Save** button	
Test Data		
Pre-Condition	The user not opened any type of file	
Post-Condition	Fill will save	
Expected Result	Required file should be save	
Actual Result	File saves	
Status	Pass	

Table 7.4 Test Case of Saving a file

Test Case Name: Save As

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-05
Test Case Description	The save as function must work on exist file	
Test Steps	1. Start the application 2. Open an exist file 3. Edit it 4. Go to menu bar and open file menu 5. Click on **Save As** button or press key **(Ctrl + S)**	
Test Data	The exist file save as or not?	
Pre-Condition	File does not exist	
Post-Condition	File will save	
Expected Result	The save as function must executed successfully	
Actual Result	The edited file save as **Save As.**	
Status	Pass	

Table 7.5 Test Case of Save as

Test Case Name: Print

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-06
Test Case Description	The file must print	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Go to menu bar and open file menu 4. Click on **Print** button or press shortcut key (**Ctrl + P)**	
Test Data	The file must print	
Pre-Condition	Printer is not attached or some printer issues	
Post-Condition	File will print	
Expected Result	The required file should print	
Actual Result	The function performs well and file is printed	
Status	Pass	

Table 7.6 Test Case of Print

Test Case Name: Print Preview

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-07
Test Case Description	The print view of file before printing must exist	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Go to menu bar and open file menu 4. Click on **Print Preview** button	
Test Data	The virtual print view of a file must exist	
Pre-Condition	The length, width and other properties are not specified	
Post-Condition	Virtual representation of file will open	
Expected Result	The virtual print view of file must open	
Actual Result	The virtual print view of file is open and works properly	
Status	Pass	

Table 7.7 Test Case of Print preview

Test Case Name: Copy

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-08
Test Case Description	The copy function must copy the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Select the text 4. Go to menu bar and open edit menu 5. Click on **Copy** button or press shortcut key **(Ctrl + C)**	
Test Data	The selected data must copy	
Pre-Condition	The text is not selected that is to be copy	
Post-Condition	The text will copy	
Expected Result	The selected text is expected to be copy	
Actual Result	The selected data is copy	
Status	Pass	

Table 7.8 Test Case of Copy

Test Case Name: Cut

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-09
Test Case Description	The cut function must cut the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Select the text 4. Go to menu bar and open edit menu 5. Click on **Cut** button	
Test Data	The selected data must cut	
Pre-Condition	The text is not selected that is to be cut	
Post-Condition	Data will cut	
Expected Result	The selected text is expected to be cut	
Actual Result	The selected data is successfully cut	
Status	Pass	

Table 7.9 Test Case of Cut

Test Case Name: Paste

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-10
Test Case Description	The paste function must paste the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Select the text and copy it or cut it 4. Go to menu bar and open edit menu 5. Click on **Paste** button or press shortcut key **(Ctrl + V)**	
Test Data	The copy or cut data must paste	
Pre-Condition	The text is not copy or cut that is to be paste	
Post-Condition	Copy text will paste	
Expected Result	The copy or cut text is expected to be paste	
Actual Result	The copy or cut data is paste successfully	
Status	Pass	

Table 7.10 Test Case of Paste

Test Case Name: Select All

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-11
Test Case Description	The select all function must select all the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Go to menu bar and open edit menu 4. Click on **Select All** button or press shortcut key **(Ctrl + A)**	
Test Data	The all data of a file must select	
Pre-Condition	No file is open	
Post-Condition	Text will select	
Expected Result	The complete text of a file is selected	
Actual Result	All text of a file selects	
Status	Pass	

Table 7.11 Test Case of Select All

Test Case Name: Undo

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-12
Test Case Description	The undo function must undo the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Make some changes in the text of a file 4. Go to menu bar and open edit menu 5. Click on **Undo** button or press shortcut key **(Ctrl + Z)**	
Test Data	The changes should reverse	
Pre-Condition	Changes do not happen in the file	
Post-Condition	Text of file will change	
Expected Result	The changes make in the file should reverse	
Actual Result	The undo function performs successfully	
Status	Pass	

Table 7.12 Test Case of Undo

Test Case Name: Redo

Project Name	Module Name	Test Case ID
Urdu Master	Menu Functions	ID-13
Test Case Description	The redo function must redo the data	
Test Steps	1. Start the application 2. Open a new file and write in it or open an exist file 3. Make some changes in the text of a file 4. Go to menu bar and open edit menu 5. Click on **Redo** button or press shortcut key **(Ctrl + Y)**	
Test Data	The undo should reverse	
Pre-Condition	The undo does not happen in the file	
Post-Condition	The operation will undo	
Expected Result	The undo made in the file should reverse	
Actual Result	The redo function performs successfully	
Status	Pass	

Table 7.13 Test Case of Redo

Test Case Name: Zoom In

Project Name	Module Name	Test Case ID
Urdu Master	Zoom In	ID-14
Test Case Description	Users can zoom in to the page.	
Test Steps	1. Start the application 2. Click on view 3. Find zoom in button 4. Choose the zoom in button	
Test Data	Zoom in button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Zoom in will be performed successfully	
Expected Result	Zoom in should be performed successfully	
Actual Result	Zoom in is performed successfully	
Status	Pass	

Table 7.14 Test Case of Zoom In

Test Case Name: Zoom Out

Project Name	Module Name	Test Case ID
Urdu Master	Zoom Out	ID-15
Test Case Description	Users can zoom out the page	
Test Steps	1. Start the application 2. Click on view 3. Find Zoom out button 4. Choose the zoom out button	
Test Data	Zoom out button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Zoom out will be performed successfully	
Expected Result	Zoom out should be performed successfully	
Actual Result	Zoom out is performed successfully	
Status	Pass	

Table 7.15 Test Case of Zoom Out

Test Case Name: Status Bar

Project Name	Module Name	Test Case ID
Urdu Master	Status bar	ID-16
Test Case Description	Users can view various kind of status information	
Test Steps	1. Start the application 2. Status bar appears bottom of the application. 3. Status bar shows name of task performing	
Test Data	Status bar button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Status information can be viewed successfully	
Expected Result	Status information should be performed successfully	
Actual Result	Status information is viewed successfully	
Status	Pass	

Table 7.16 Test Case of Status Bar

Test Case Name: Hide Tools

Project Name	Module Name	Test Case ID
Urdu Master	Hide tools	ID-17
Test Case Description	Users can hide that tool which they want	
Test Steps	1. Start the application 2. Click on view 3. Find hide tools button 4. Choose the hide tools buttons	
Test Data	Hide tools button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Tools will be hidden successfully	
Expected Result	Tools should be hidden successfully	
Actual Result	Tools are hidden successfully	
Status	Pass	

Table 7.17 Test Case of Hide Tools

Test Case Name: Show Tools

Project Name	Module Name	Test Case ID
Urdu Master	Show Tools	ID-18
Test Case Description	Users can display tools of the application	
Test Steps	1. Run the application 2. Click on view 3. Find show tools button 4. Choose show tools button	
Test Data	Show tools button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Tools will be display successfully	
Expected Result	Tools should be display successfully	
Actual Result	Tools are display successfully	
Status	Pass	

Table 7.18 Test Case of Show Tools

Test Case Name: Show Keyboard

Project Name	Module Name	Test Case ID
Urdu Master	Show keyboard	ID-19
Test Case Description	Users can display keyboard of the application	
Test Steps	1. Run the application 2. Click on view 3. Find show keyboard button 4. Choose show keyboard button	
Test Data	Show keyboard button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Keyboard will be display successfully	
Expected Result	Keyboard should be display successfully	
Actual Result	Keyboard is display successfully	
Status	Pass	

Table 7.19 Test Case of Character

Test Case Name: Paragraph

Project Name	Module Name	Test Case ID
Urdu Master	Paragraph	ID-20
Test Case Description	Users can change the format of the paragraph	
Test Steps	1. Run the application 2. Click on view 3. Find hide keyboard button 4. Choose hide keyboard button	
Test Data	Hide keyboard button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Keyboard will be hide successfully	
Expected Result	Keyboard should be hide successfully	
Actual Result	Keyboard is hide successfully	
Status	Pass	

Table 7.20 Test Case of Paragraph

Test Case Name: Hide Keyboard

Project Name	Module Name	Test Case ID
Urdu Master	Hide keyboard	ID-21
Test Case Description	Users can hide keyboard of the application	
Test Steps	1. Run the application 2. Click on format 3. Find PARAGRAPH option 4. Choose the PARAGRAPH button	
Test Data	Paragraph format button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Format of the paragraph will be changed successfully	
Expected Result	Format of the paragraph should be changed successfully	
Actual Result	Format of the paragraph is changed successfully	
Status	Pass	

Table 7.21 Test Case of Tabs

Test Case Name: Table Format

Project Name	Module Name	Test Case ID
Urdu Master	Table format	ID-22
Test Case Description	Users can change format of the table	
Test Steps	1. Start the application 2. Click on format 3. Find Table format option 4. Choose the table format button	
Test Data	Table format button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Format of the table will be changed successfully	
Expected Result	Format of the table should be changed successfully	
Actual Result	Format of the table is changed successfully	
Status	Pass	

Table 7.22 Test Case of Table Format

Test Case Name: Table Layout

Project Name	Module Name	Test Case ID
Urdu Master	Table layout	ID-23
Test Case Description	Users can change layout of the table	
Test Steps	1. Start the application 2. Click on format 3. Find Table layout option 4. Choose the table layout button	
Test Data	Table layout button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Layout of the table will be changed successfully	
Expected Result	Layout of the table should be changed successfully	
Actual Result	Layout of the table is changed successfully	
Status	Pass	

Table 7.23 Test Case of Table Layout

Test Case Name: Page

Project Name	Module Name	Test Case ID
Urdu Master	Page	ID-24
Test Case Description	Users can insert new page	
Test Steps	1. Run the application 2. Click on insert 3. Find Page option 4. Choose the page button	
Test Data	Insert page button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Page will be inserted successfully	
Expected Result	Page should be inserted successfully	
Actual Result	Page is inserted successfully	
Status	Pass	

Table 7.24 Test Case of Page

Test Case Name: Page Number

Project Name	Module Name	Test Case ID
Urdu Master	Page number	ID-25
Test Case Description	Users can insert page number	
Test Steps	1. Run the application 2. Click on insert 3. Find Page number option 4. Choose the page number button	
Test Data	Insert page number button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Page number will be inserted successfully	
Expected Result	Page number should be inserted successfully	
Actual Result	Page number is inserted successfully	
Status	Pass	

Table 7.25 Test Case of Page Number

Test Case Name: Page Break

Project Name	Module Name	Test Case ID
Urdu Master	Page break	ID-26
Test Case Description	Users can split document pages into section	
Test Steps	1. Start the application 2. Click on insert 3. Find Page break option 4. Choose the page break button	
Test Data	Page break button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Page break will be applied successfully	
Expected Result	Page break should be applied successfully	
Actual Result	Page break is applied successfully	
Status	Pass	

Table 7.26 Test Case of Page Breaks

Test Case Name: Picture

Project Name	Module Name	Test Case ID
Urdu Master	Picture	ID-27
Test Case Description	Users can insert picture into the document	
Test Steps	1. Start the application 2. Click on insert 3. Find Picture option 4. Choose the picture button	
Test Data	Insert picture button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Picture will be inserted successfully	
Expected Result	Picture should be inserted successfully	
Actual Result	Picture is inserted successfully	
Status	Pass	

Table 7.27 Test Case of Picture

Test Case Name: Symbol

Project Name	Module Name	Test Case ID
Urdu Master	Symbol	ID-28
Test Case Description	Users can insert symbol and special characters in document	
Test Steps	1. Run the application 2. Click on insert 3. Find Symbol option 4. Choose the symbol button	
Test Data	Insert symbol button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Symbol or special character will be inserted successfully	
Expected Result	Symbol or special character should be inserted successfully	
Actual Result	Symbol or special character is inserted successfully	
Status	Pass	

Table 7.28 Test Case of Symbol

Test Case Name: Table

Project Name	Module Name	Test Case ID
Urdu Master	Table	ID-29
Test Case Description	Users can insert table into the document	
Test Steps	1. Run the application 2. Click on insert 3. Find Table option 4. Choose the table button	
Test Data	Insert table button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Table will be inserted successfully	
Expected Result	Table should be inserted successfully	
Actual Result	Table is inserted successfully	
Status	Pass	

Table 7.29 Test Case of Table

Test Case Name: Time and Date

Project Name	Module Name	Test Case ID
Urdu Master	Time and Date	ID-30
Test Case Description	Users can insert time and date into the document	
Test Steps	1. Start the application 2. Click on insert 3. Find Time and date option 4. Choose the Time and date button	
Test Data	Insert Time and date button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Time and date will be inserted successfully	
Expected Result	Time and date should be inserted successfully	
Actual Result	Time and date is inserted successfully	
Status	Pass	

Table 7.30 Test Case of Time and Date

Test Case Name: Index

Project Name	Module Name	Test Case ID
Urdu Master	Index	ID-31
Test Case Description	Users can view topics that are inserted into the document	
Test Steps	1. Start the application 2. Click on help 3. Find Index option 4. Choose the Index button	
Test Data	Index button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Topics that are inserted can be viewed successfully	
Expected Result	Topics that are inserted should be viewed successfully	
Actual Result	Topics that are inserted is viewed successfully	
Status	Pass	

Table 7.31 Test Case of Index

Test Case Name: Shortcut

Project Name	Module Name	Test Case ID
Urdu Master	Shortcut	ID-32
Test Case Description	Users can view shortcut keys for different operations	
Test Steps	1. Start the application 2. Click on help 3. Find shortcut option 4. Choose the shortcut button	
Test Data	Shortcut button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Shortcut keys that are inserted can be viewed successfully	
Expected Result	Shortcut keys that are inserted should be viewed successfully	
Actual Result	Shortcut keys that are inserted is viewed successfully	
Status	Pass	

Table 7.32 Test Case of Shortcut

Test Case Name: Text To Speech

Project Name	Module Name	Test Case ID
Urdu Master	Text t To Speech	ID-33
Test Case Description	Users can convert text into speech or listen what they write	
Test Steps	1. Start the application 2. Write something in the file or open existing file 3. Click on listen button	
Test Data	The text must be converted into speech	
Pre-Condition	Application must be in running state	
Post-Condition	Text will not convert into speech	
Expected Result	Text should be converted into speech	
Actual Result	Text is converted into speech	
Status	Pass	

Table 7.33 Test Case of GUI Responsiveness

Test Case Name: Title

Project Name	Module Name	Test Case ID
Urdu Master	Title	ID-34
Test Case Description	Users can view title of document	
Test Steps	1. Start the application 2. Click on window 3. Find Title option 4. Choose the Title button	
Test Data	Title button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Title that is inserted can be viewed successfully	
Expected Result	Title that is inserted should be viewed successfully	
Actual Result	Title that is inserted is viewed successfully	
Status	Pass	

Table 7.34 Test Case of Title

Test Case Name: Ribon

Project Name	Module Name	Test Case ID
Urdu Master	Ribon	ID-36
Test Case Description	Users can view Ribon of seven tabs in document	
Test Steps	1. Run the application 2. Click on window 3. Find Ribon option 4. Choose the Ribon button	
Test Data	Ribon button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Ribon that is inserted can be applied successfully	
Expected Result	Ribon that is inserted should be applied successfully	
Actual Result	Ribon that is inserted is applied successfully	
Status	Pass	

Table 7.36 Test Case of Ribon

Test Case Name: Close All

Project Name	Module Name	Test Case ID
Urdu Master	Close all	ID-37
Test Case Description	Users can close all tabs in document	
Test Steps	1. Start the application 2. Click on window 3. Find Close all option 4. Choose the Close all button	
Test Data	Close all button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Pages that are inserted can be closed successfully	
Expected Result	Pages that is inserted should be closed successfully	
Actual Result	Pages that is inserted is closed successfully	
Status	Pass	

Table 7.37 Test Case of Close all

Test Case Name: Font

Project Name	Module Name	Test Case ID
Urdu Master	FONT	ID-38
Test Case Description	Users can change font of the text	
Test Steps	1. Run the application 2. Click on FONT button 3. Find your appropriate FONT 4. Choose that FONT	
Test Data	FONT button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	FONTS that are inserted can be applied successfully	
Expected Result	FONTS that is inserted should be applied successfully	
Actual Result	FONTS that is inserted is applied successfully	
Status	Pass	

Table 7.38 Test Case of Font

Test Case Name: Colour

Project Name	Module Name	Test Case ID
Urdu Master	Colour	ID-39
Test Case Description	Users can change colour of the text	
Test Steps	1. Run the application 2. Click on Colour button 3. Find your appropriate Colour 4. Choose that Colour	
Test Data	Colour button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Colour that are inserted can be applied successfully	
Expected Result	Colour that is inserted should be applied successfully	
Actual Result	Colour that is inserted is applied successfully	
Status	Pass	

Table 7.39 Test Case of Colour

Test Case Name: Bold

Project Name	Module Name	Test Case ID
Urdu Master	Bold	ID-40
Test Case Description	Users can change boldness of the text	
Test Steps	1. Start the application 2. Select the text to which you to apply bold 3. Click on Bold button 4. Boldness will be applied	
Test Data	Bold button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Bold that is inserted can be applied successfully	
Expected Result	Bold that is inserted should be applied successfully	
Actual Result	Bold that is inserted is applied successfully	
Status	Pass	

Table 7.40 Test Case of Bold

Test Case Name: Italic

Project Name	Module Name	Test Case ID
Urdu Master	Italic	ID-41
Test Case Description	Users can italicize the text of document	
Test Steps	1. Run the application 2. Select the text to which you want to italicize 3. Click on Italic button 4. Italicize will be applied	
Test Data	Italic button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Italic that is inserted can be applied successfully	
Expected Result	Italic that is inserted should be applied successfully	
Actual Result	Italic that is inserted is applied successfully	
Status	Pass	

Table 7.41 Test Case of Italic

Test Case Name: Underline

Project Name	Module Name	Test Case ID
Urdu Master	Underline	ID-42
Test Case Description	Users can underline the text of document	
Test Steps	1. Start the application 2. Select the text to which you want to underline 3. Click on underline button 4. Underline will be applied	
Test Data	Underline button’s functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Underline that is inserted can be applied successfully	
Expected Result	Underline that is inserted should be applied successfully	
Actual Result	Underline that is inserted is applied successfully	
Status	Pass	

Table 7.42 Test Case of Underline

Test Case Name: Search

Project Name	Module Name	Test Case ID
Urdu Master	Search	ID-43
Test Case Description	Users can search any word in the text of document	
Test Steps	1. Run the application 2. Click on search button 3. Type any word in search button 4. All the matched words will be shown	
Test Data	Search button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Search button that is inserted can be applied successfully	
Expected Result	Search button that is inserted should be applied successfully	
Actual Result	Search button that is inserted is applied successfully	
Status	Pass	

Table 7.43 Test Case of Search

Test Case Name: Bullets

Project Name	Module Name	Test Case ID
Urdu Master	Bullets	ID-44
Test Case Description	Users can apply bullet in the text of document	
Test Steps	1. Start the application 2. Select the text you want to apply bullets 3. Click on the bullet button 4. Bullets will be applied to text	
Test Data	Bullet button's functionality will be tested	
Pre-Condition	Application must be in running state	
Post-Condition	Bullet button that is inserted can be applied successfully	
Expected Result	Bullet button that is inserted should be applied successfully	
Actual Result	Bullet button that is inserted is applied successfully	
Status	Pass	

Table 7.44 Test Case of Bullets

Test Case Name: GUI Responsiveness

Project Name	Module Name	Test Case ID
Urdu Master	GUI Responsiveness	ID-45
Test Case Description	Users can increase or decrease the size of application without any affect on other options and buttons.	
Test Steps	1. Start the application 2. Click on minimize or maximize button 3. Or resize the application from borders using mouse	
Test Data	GUI responsiveness will check	
Pre-Condition	Application must be in running state	
Post-Condition	Responsiveness of GUI will not work successfully	
Expected Result	Responsiveness of GUI will work successfully	
Actual Result	Responsiveness of GUI is working successfully	
Status	Pass	

Table 7.45 Test Case of GUI Responsiveness

CHAPTER 8

CONCLUSION AND FUTURE WORK

In this chapter, the conclusions on the basis of test cases and the future recommendations for the extension and improvement of the Urdu master application have been discussed. The conclusions of the system include that the Urdu master application is a desktop-based application which is built on C (Sharp). So, it is platform independent. It means it can run on various operating systems (Windows, Linux or Mac OS etc.).

Urdu master application is designed in manner that it is very simple to use. One cannot deny the need of word processors for the native language as a means to promote culture and literature. Our motive is to put those aforementioned features into an Urdu master to live up to the user' present-day needs regarding word processing. Ahead in near future, we would be developing word processing application that would cater all these features hence, would evolve a new breed of word processing application in computing.

The mentioned features are supposed to be the core elements of any modern word processor and is a must have requirement for the Urdu master application as well. Is a comprehensive analysis of different keyboards which provide the easy keyboard to user to remember the key and easily used. Urdu master is software which specific for urdu text editing so everything is written in urdu. An Urdu text image is scanned or written using computer. A set of images were taken including Urdu characters and ligatures.

The image to be searched is taken as a template image and then it is compared with the source image which is used as database. The template image or the image with closest representation is found in the source image. 2-D correlation coefficient approach has been used between the test image and the database source image. This method can be then expanded for a complete Urdu OCR system. In future we will try to develop a complete OCR system for Urdu master. Many aspects of the font making for Urdu script have discussed in detail. A number of problems were faced during this work but at the end all the problems are successfully faced and all the goals are achieved in a proper way. A possible calligraphic touch has been given to all fonts developed during this work.

The Urdu keyword in keyboard and its proper positioning in font setting was a difficult task. Its coding was made for so many times and each time coding has been started and progressed to be goal.

Now saving a file and opening a file with the extension of Urdu Master is not possible because this file does not exist. To save file with the extension of Urdu Master or open a file with extension of Urdu Master, we must create extension file of Urdu Master but due to shortage of time it is not possible now. For now, we use built in file extension support of Visual Studio. In future, we will update Urdu Master application that will be capable of save a file or open a file with extension of Urdu Master.

And all files open in Urdu Master was another difficult task. Its coding was made for so many times and each time coding has been started and progressed to be goal. We will update our Urdu Master application in future by adding more features like Arabic or Pashto typing and editing etc.

Due to time constraints and lack of resources, these features are not added in project yet. But in future, these features will be added in the Urdu Master application and users will able to use these features in Urdu Master application.

Results

- The application can be used anytime and from anywhere by the User.
- The user can be searched any word in this application.

Problem faced

I faced some following problem:

- Unrealistic Deadlines
- Finding the right project software
- Time Management
- Risk Management

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APPENDIX

User Interface

Screen Shot - Name

Remove the Text and Place the Screen Shot Here.

Figure 1.0

Screen Shot - Name

Remove the Text and Place the Screen Shot Here.

Figure 2.0

Screen Shot - Name

Remove the Text and Place the Screen Shot Here.

Figure 3.0

Screen Shot - Name

Remove the Text and Place the Screen Shot Here.

Figure 4.0

Screen Shot - Name

Remove the Text and Place the Screen Shot Here.

Figure 5.0

… And So On With Same Format …