
SOFTWARE REQUIREMENTS SPECIFICATION

for

Quiz Application

Version 1.0

Prepared by:

Venkataraman Nagarajan - 18 5001 192

Vikram Venkatapathi - 18 5001 194

Vishakan Subramanian - 18 5001 196

**CSE Department
SSN College of Engineering**

Revision History

Date	Version	Description	Author
04-Feb-2021	1.0	Software Requirements Specification Document - Initial Release.	All

Contents

1	Introduction	5
1.1	Purpose	5
1.2	Intended Audience and Reading Suggestions	5
1.3	Project Scope	5
1.4	Overview	6
1.4.1	Chapter 2 - Overall Description	6
1.4.2	Chapter 3 - External Interface Requirements	6
1.4.3	Chapter 4 - System Features	6
1.4.4	Chapter 5 - Other Non-Functional Requirements	6
2	Overall Description	7
2.1	Product Perspective	7
2.2	Product Functions	8
2.3	User Classes and Characteristics	8
2.3.1	Member	8
2.3.2	Admin	8
2.4	Operating Environment	8
2.5	Design and Implementation Constraints	9
2.6	Assumptions and Dependencies	9
3	External Interface Requirements	10
3.1	User Interfaces	10
3.2	Hardware Interfaces	10
3.3	Software Interfaces	10
3.4	Communications Interfaces	10
4	System Features	11
4.1	User Authentication	11
4.1.1	Description and Priority	11
4.1.2	Stimulus/Response Sequences	11
4.2	Database and Storage	11
4.2.1	Description and Priority	11
4.2.2	Stimulus/Response Sequences	11
4.3	Creating A Quiz	12
4.3.1	Description and Priority	12
4.3.2	Stimulus/Response Sequences	12

4.4	Taking A Quiz	12
4.4.1	Description and Priority	12
4.4.2	Stimulus/Response Sequences	12
5	Other Nonfunctional Requirements	13
5.1	Safety Requirements	13
5.2	Security Requirements	13
5.3	Software Quality Attributes	13
5.3.1	Reliability	13
5.3.2	Availability	13
5.3.3	Maintainability	13
5.4	Other Requirements	14
5.4.1	Licensing	14
5.4.2	Legal, Copyright and Other Notices	14
5.4.3	Applicable Standards	14
	Appendix A : Glossary	15
	Appendix B : Acronyms	16

1 Introduction

1.1 Purpose

The purpose of System Requirements Specification (SRS) document is to describe the external behavior of the Quiz Application. Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the Quiz Application. The document also describes the nonfunctional requirements such as the member interfaces. It also describes the design constraints that are to be considered when the system is to be designed, and other factors necessary to provide a complete and comprehensive description of the requirements for the software. The SRS captures the complete software requirements for the system.

1.2 Intended Audience and Reading Suggestions

The application focuses on students, professors, trainees, club enthusiasts and quiz conductors to take up quiz based tests with ease and convenience.

The rest of the SRS contains details about objectives, scope, limitations, primary requirements and other relevant material.

1.3 Project Scope

The application's purpose is to make conducting & taking quizzes seamless and efficient, over the internet. It provides a simple environment that enables quiz conductors and quiz takers to host/take up their respective quizzes with ease and convenience. The Quiz Application is supposed to have the following features.

- The application provides members with the ability to take up and host their own quizzes.
- The system provides facility for each member to login to their own accounts.
- The system provides the members with the option to change their profile details and/or change their password whenever needed.
- The system allows each member to create their own quiz, along with time constraints and deadlines and share it to it's intended quiz takers by means of a unique code/URL.
- The system allows members to take up quizzes for which they have been given permission to take up (by the quiz conductor)

- The system provides an interface for the quiz takers to take up their quiz, with options for navigation, alerts for the remaining time, along with the current question and it's options as posted by the quiz conductor.
- The system intimates the score obtained by the quiz taker at the end of the quiz.
- The scoring system is handled as desired by the quiz conductor.
- The application allows the quiz conductor to view details related to the status of the quiz.

1.4 Overview

The SRS will provide a detailed description of the Quiz Application. This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.

1.4.1 Chapter 2 - Overall Description

This section of the SRS will provide the general factors that affect the product and its requirements. It provides the background for those requirements. The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are described in this section.

1.4.2 Chapter 3 - External Interface Requirements

This section of the SRS describes the interface requirements, namely UI requirements, Hardware and Software Interface requirements and Communication interface requirements.

1.4.3 Chapter 4 - System Features

This section of SRS captures most of the feature structure provided by Quiz Application. This section briefly explains each feature, its priority and stimulus and response sequence of the same.

1.4.4 Chapter 5 - Other Non-Functional Requirements

This section of SRS captures all the non-functional requirements of the Quiz Application. This section explores safety & security requirements, and other quality attributes: Reliability, Maintainability and Availability.

2 Overall Description

2.1 Product Perspective

The Quiz Application is a system developed keeping in mind the perspective of primary test takers and test conductors, like students & professors; although any other actors like competition conductors, quiz clubs and such enthusiasts can make use of the application.

It greatly benefits colleges and schools because they can seamlessly conduct their tests through this popular format for assessment. Any member can be a quiz conductor and a quiz taker.

The quiz created by a member quiz conductor is stored over the cloud. Quiz takers are given access to take up the quiz within a specified deadline. The results of each quiz taker is stored along with their details separately for the quiz conductor's future reference.

It aims to simplify the process of conducting quizzes online, with minimal effort required to conduct or take a quiz. The product is required to interact with other systems like the Internet, the cloud database, the member and the administrators.

The complete overview of the system is as shown in the overview diagram below:

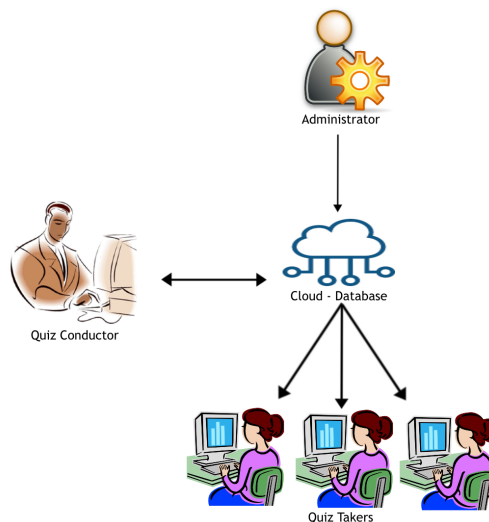


Figure 2.1: *Overview of the proposed system*

2.2 Product Functions

The Quiz Application the basic functions as described in project perspective section. The functions of the system include the system providing different type of services based on the type of members [Member/Admin].

- The member should be able host a quiz, or can even take up a quiz from a unique code.
- The quiz conductor should be able to set the timings of the quiz.
- The quiz conductor should be able to pool the questions into the database and can set number of questions and number of options for each question.
- The quiz conductor should be able to view the score and certain details of the quiz takers.
- The quiz taker should be able to access the quiz with the help of the unique code.
- The quiz taker should be able to view his/her score as soon as he/she submits the quiz.
- The quiz taker should be able to view the scores of previous quizzes.
- The admin should be able to add/edit/remove quizzes/members from the database.

2.3 User Classes and Characteristics

The users of the system are the members and the administrators who maintain the system.

2.3.1 Member

The members are assumed to have basic working knowledge of computers and internet browsing.

2.3.2 Admin

The administrators handle the internals of the system. They will be able to rectify the errors/crashes in case of power failure/system overload. Admins have superuser permissions, and can modify the database and add/remove/edit features at their will.

2.4 Operating Environment

The application will include support for the  ,  operating system and major  distributions. It is intended to independently work across these different platforms without any major dependencies.

2.5 Design and Implementation Constraints

- The information of all the members must be stored in a database that is accessible by the Quiz Application.
- The Quiz Application is connected to the local computer and is running all 24 hours a day.
- The users access the Quiz Application from any computer that has Internet browsing capabilities and an Internet connection.
- The scoring system is connected to the Quiz Application system and the database used by the scoring system must be compatible with the interface of the Quiz Application.
- The members must have their correct usernames and passwords to enter into the application.

2.6 Assumptions and Dependencies





- The quiz conductors will only set right questions.
- The users are quite familiar with computers and accessing application's interface.
- The quiz takers have an uninterrupted Internet connection.
- The users are comfortable with the English language and can understand UI options provided.
- The quiz format will only consist of MCQ questions.
- Google Cloud Platform will provide uninterrupted service for accessing our data through their cloud interface.

3 External Interface Requirements

3.1 User Interfaces

- The user interface will be a standard application window with components like buttons, text fields, radio buttons etc.
- First time users will have to create an account through a registration form page.
- After login, the user will be redirected to his dashboard where he can either take up an existing quiz by entering the unique quiz code or create a new quiz.
- Users are given options to log out and change their personal preferences of the application.

3.2 Hardware Interfaces

- The application will collect data from the users and push it to our cloud for persistent storage and future processing.
- Any computer that can run on  ,  7 or above,  distributions like Ubuntu 16.04 and such similar  distributions will be compatible to run the application without any major issues and bottlenecks.

3.3 Software Interfaces

Database : Firebase
Front-End Application : Written in a general purpose programming language.

3.4 Communications Interfaces

- The system will be connected to the Internet.
- Communication to the database will take place through existing secure APIs defined by Google Cloud Platform.
- Firewall and antivirus programs are recommended for security purposes.

4 System Features

4.1 User Authentication

4.1.1 Description and Priority

Each user will be allowed to access the features provided by the application only after they login to their respective account. Provision will be given for first-time users to create a new account for themselves.

4.1.2 Stimulus/Response Sequences

The user on opening the application sees a prompt in his/her user interface asking him/her to login to their account or create a new account. Existing users can login to their account by providing their login ID and password, whereas new users will have to fill out a form and register their account with the application. The credentials will be validated by the system and the user will be proceeded to the application dashboard if the credentials are correct. Otherwise, he/she will receive an intimation claiming that the credentials are invalid.

4.2 Database and Storage

4.2.1 Description and Priority

The proposed database is intended to store, retrieve, update information related to the users, which includes:

- User details
- Questions and Responses List
- Test Results

4.2.2 Stimulus/Response Sequences

Responses for the Administrator

- The administrator can login and logout using his/her credentials.
- The system will check for the validity of the login.
- Upon successful login the administrator will be able to perform basic **CRUD** operations and other operations that can be performed on the database.

Responses for the quiz taker

- When the user creates a new account, the user record is added to the database.
- The quiz taker can update his/her details.
- The quiz taker's test results will get stored in the database after the completion of each quiz.

4.3 Creating A Quiz

4.3.1 Description and Priority

This is one of the primary features of the application, and it is a platform to generate new quizzes along with their constraints.

4.3.2 Stimulus/Response Sequences

Any member who's logged in to the application can create his own quiz. The member can type in his/her questions along with their choices, and indicate to the system the correct option. He/she can also set the preferences for time control, number of questions, shuffling, pooling of questions etc. He/She will be given an interface to set these parameters for the quiz once the questions are uploaded. Once this is done, the system will prompt the user with a confirmation and generate a unique code for the quiz that can be shared with the quiz takers.

4.4 Taking A Quiz

4.4.1 Description and Priority


This is one of the primary features of the application, and it is a platform to take up existing quizzes.

4.4.2 Stimulus/Response Sequences

Any member who's logged in to the application can take up a quiz that has already been published on the application by some other user, using the unique code of the quiz. The user has to take up the quiz within the deadline, if any. Otherwise, the system will intimate the user that the quiz has expired. On taking up a valid quiz, the user can select options for each question one by one, can revisit marked questions and can submit the quiz within the timer. On timer expiry, the latest marked answers are auto-submitted by the application. Once the quiz has ended, the user is intimated with his/her score. The user's score & few other details are also stored by the application for the quiz conductor's reference.

5 Other Nonfunctional Requirements

5.1 Safety Requirements

The application is meant to be used as-is. Interested users are informed to download the application files from our official  repository . Users are also required to keep their account credentials private, for maintaining their own privacy.

5.2 Security Requirements

The system's database is highly secure, since it is hosted on Google Cloud Platform, which has its own security solutions. Google Cloud Platform is an industrially renowned expert in providing such solutions. The application's internal working is abstracted from the user, thus it is not vulnerable to manual changes.

5.3 Software Quality Attributes

5.3.1 Reliability

The system's database is completely maintained online as the system uses Google Firebase for data storage. Thus, the application will be reliable and robust, and will be free from data breaches and other such vulnerabilities. Each end-user is authorized by means of Login ID and Password, thus privacy is maintained.

5.3.2 Availability

The application will be available to all the members, provided they have a stable and persistent Internet connection. The application will not be down unless our cloud data is unreachable, and since Google Firebase is a reliable solution with very minimal and infrequent downtimes, the application is available 24/7.

5.3.3 Maintainability

The application is regularly monitored by the crash analytics feature of Firebase. The performance of the application remains unaltered for any number of members, provided the application's hosting resources are scaled suitably.

5.4 Other Requirements

5.4.1 Licensing

The usage of the application is restricted according to the guidelines specified under the MIT License.

5.4.2 Legal, Copyright and Other Notices

Google Cloud Platform, Firebase are registered trademarks under Alphabet Inc. Our application is granted for use as-is, as specified under the MIT License. We are, however, not responsible for any problems/ill effects arising from modified versions of our application, developed by other users using our code base.

5.4.3 Applicable Standards

The ISO/IEC 6592 guidelines for the documentation of computer based application systems will be followed for this application.

Appendix A : Glossary

Alphabet Inc. Alphabet Inc. is the parent company of Google and several other former Google subsidiaries. 14

Firebase Firebase is a platform developed by Google for creating mobile and web applications. 10, 13, 14

Google Cloud Platform It is a suite of cloud computing services, offered by Google. 9, 10, 13, 14

MIT License The MIT License is a permissive free software license originating at the Massachusetts Institute of Technology (MIT) in the late 1980s. MIT-licensed software can also be re-licensed as proprietary software, which distinguishes it from copyleft software licenses. 14

quiz conductor The member who hosts a quiz. 5–9, 12

quiz taker The member who takes up a quiz using a unique code. 5–9, 12

Appendix B : Acronyms

CRUD Create, Read, Update, Delete. 11

IEC International Electrotechnical Commission. 14

ISO International Organization for Standardization. 14

MCQ Multiple-Choice Questions. 9

SRS System Requirements Specification. 5, 6

UI User Interface. 6, 9

URL Uniform Resource Locator. 5