**SOFTWARE REQUIREMENTS SPECIFICATION**

**For**

**Online Quiz System**

**Prepared by:-**

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**1.Introduction**

**1.1 Purpose**

The main objective of this document is to illustrate the requirements of the project Online quiz system. The document gives the detailed description of the both functional and non-functional requirements proposed by the client. An online quiz system project serves the purposes of facilitating education through assessments, providing immediate feedback, and supporting adaptive learning. The system offers convenience and accessibility, time efficiency, data analysis for performance tracking, and can incorporate gamification elements to enhance engagement in the learning process. This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

**1.2 Document Conventions**

* Entire document should be justified.
* Convention for Main title
* Font face: Times New Roman
* Font style: Bold
* Font Size: 16
* Convention for Sub title
* Font face: Times New Roman
* Font style: Bold
* Font Size: 14
* Convention for body
* Font face: Times New Roman
* Font Size: 14

**1.3 Scope of Development project**

Scope of this project is very broad compared to manually taken exams. This app can be used in educational institutions as well as in corporate world. Can be used anywhere any time as it is a web based application.No restriction that examiner has to be present when the candidate takes the test. No manual work of preparing and storing the result information.

Help students to go beyond their normal curriculum and learn about various other aspects which are apart from academic education. To provide an examination system where, there is virtually no scope of errors and the results are much faster. And the system is more transparent.To provide an environment where students not only can learn but also analyze their performance simultaneously and to train the students to work within time limit with constraints.

The project can be easily implemented under various situations. We can add new features as and when we require, making reusability possible as there is flexibility in all the modules. The language used for developing the project is Java as it is quite advantageous than other languages in terms of performance, tools available, cross platform compatibility, libraries, cost (freely available), and development process.

**1.4 Definitions, Acronyms and Abbreviations**

* JAVA - platform independence
* SQL - Structured query Language
* ER - Entity Relationship
* UML - Unified Modeling Language
* IDE - Integrated Development Environment
* SRS - Software Requirement Specification

**1.5 References**

* IEEE Std 828-1998, IEEE Standard for Software Configuration ManagementPlans.
* IEEE Std 610.12-1990, IEEE Standard Glossary of Software EngineeringTerminology.
* IEEE Std 730-1998, IEEE Standard for Software Quality Assurance Plans.
* R. Pressman 5E, reference book

**2. Overall Descriptions**

**2.1 Product perspective**

An online quiz system works by providing a digital platform for the creation, management, and completion of quizzes. Instructors use the system to design quizzes, incorporating various question types and setting parameters such as time limits. Users, including students, access the system, authenticate securely, and participate in real-time quizzes, receiving immediate feedback on their performance. The platform ensures that users have appropriate access levels through role-based permissions. Performance analytics track user engagement and assess the effectiveness of quizzes. The system is designed for scalability to accommodate growing user bases and content. It also includes features for content management, allowing the integration of multimedia resources.

**2.2 Product function**

The online quiz system functions as a comprehensive tool for the creation, administration, and evaluation of quizzes in an educational context. Instructors utilize the platform to design quizzes with various question formats and customize parameters such as time limits. Students and users access the system securely, take quizzes in real-time, and receive immediate feedback on their performance. The system incorporates robust features for user authentication and authorization, ensuring secure access based on roles.

**2.3 User classes and characteristics**

The system provides different types of services based on the type of users [Quiz taker/Administrator]. The Administrator will be acting as the controller and he will have all the privileges. The Quiz taker can be a student or who will be accessing the Quiz online.

1. **Administrator:**

**Characteristics:**

* Full system access and control.
* Manages user accounts and permissions.
* Adds, edits, or deletes quiz categories and questions.
* Monitors overall system performance.

**Roles:**

* User account management.
* Oversight of system functionality.
* Content moderation and analytics.

1. **Instructor / Quiz Creator:**

**Characteristics:**

* Creates and manages quizzes within specific categories.
* Limited administrative access.

**Roles:**

* Develops quizzes by adding questions.
* Defines quiz parameters (time limit, scoring rules).
* Reviews and analyzes quiz results.

1. **Student / Quiz Taker:**

**Characteristics:**

* Access to quizzes based on permissions.
* Limited to taking quizzes and viewing results.

**Roles:**

* Takes quizzes within assigned categories.
* Views quiz results and feedback.
* Accesses associated learning resources.

1. **Guest / Public User:**

**Characteristics:**

* Limited access to the system.
* Can preview sample quizzes without participating.

**Roles:**

* Views sample quizzes.
* Registers for a user account for full access.

**2.4 Assumptions and Dependencies**

**We assume all users have basic computer knowledge and also our quiz system provides good user interface and help section to help the user at any moment duringvisit to the website.**

* **Users have consistent and reliable internet connectivity to access the online quiz system.**
* **Users have access to devices (computers, tablets, smartphones) compatible with the system's requirements.**
* **Users primarily use modern and widely used web browsers for accessing the online quiz system**

**Dependencies:**

* **Dependencies on specific development frameworks, libraries, or third-party components for system development.**
* **Dependencies on the chosen database management system for storing and retrieving quiz data.**
* **Dependencies on external APIs or integrations with other systems for features like authentication or content management.**

**2.5 Requirement**

**Software Configuration:-**

**This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.**

**Operating System: Windows NT, windows 98, Windows XP Language: Java Runtime Environment, Net beans 7.0.1 (front end) Database: MS SQL Server (back end)**

**Hardware Configuration:- Processor: Pentium(R)Dual-core CPU Hard Disk: 40GB**

**RAM: 256 MB or more**

**2.6 Data Requirement**

**The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the user receiving the details of their user. In this project the inputs will be the queries as fired by the users like user login, attend quiz and view score and analyze performance. Now the output will be visible when the user requests the server to view their result and performance score.**

**3.1 External interface requirements (Non-functional requirements)**

In this section we describe all the non-functional requirements of the system. Non-functional requirements are those requirements that constitute the overallattributed of the system such as portability, performance, security, etc.

**3.1.1 User interfaces**

All activities of Quiz system have screen-based interaction. It incorporates with effectiveGUI concepts and focuses on user-friendly systems. It has good, appealing, attractive,and aesthetic web pages with optimum hyperlink to select the required process. Home page of Quiz system provides all the basic information that the user require for successful processing

**3.1.2 Hardware interfaces**

**None**

**3.1.3 Software Interfaces**

**Interfacing with several modules in order to perform various operations it require Database connectivity which is provided by MYSQL and Server interfacing which is provided by APACHE.**

**3.2 Functional requirements**

**Functional requirements specify which outputs should be produced from which given inputs. They describe the relationship between the input and the output of the system.**

**3.2.1 Validation to be performed**

**The user enters his registered email and password in the college in appropriate text and also specifies whether he is a teacher or a student in the third text box at the time of logging in.**

**3.2.2 New user registration by admin**

**Only the admin can adda new student or teacher. After having an account on the system the user, i.e. student or teacher, can change their personal details including their passwords.**

**3.2.3 Conduct Quiz**

**This system can effectively conduct a quiz from any device which can access a webpage by a student which has been registered in the system by the administrator. After the quiz the students can view their result with the correct answers.**

**3.3 Performance requirements**

**Requirements include, our total no of tasks such as login,new user registration will take certain time periods for both normal and peak workload conditions.Here we measure each task would be processed in less than 1 sec. It means 100% task performed in less than 1 sec.**

**3.4 Design constraints**

**Design constraints that can be imposed by other standards, hardware limitations, etc. Also should specify the requirements derived from existingstandards or regulations.**

**4.System Features**

**The features of an online quiz system can vary based on the specific requirements and goals of the system. Here is a list of common system features for an online quiz platform:**

* **User registration and login functionality.**
* **Secure password management.**
* **Options for social media or single sign-on (SSO) authentication.**
* **Smooth and user-friendly quiz interface.**
* **Randomization of question order to prevent cheating.**
* **Instant feedback on correct and incorrect answers**

# 5. Other Non-functional Requirements

**All the information regarding exam details, student list, question details, test details are display of result should be handled sequentially that is data should be stored are only in a particular way of information. If any of the validations or the other form of sequencing flows does not hold true then appropriate error messages will be prompted to the user for doing the needful.**

**5.1 Performance Requirements:**

**This subsection specifies numerical requirements placed on the software on the human**

**interaction with the software, as a whole. Numerical requirements will include:**

**1. 300 terminals will be supported at a time**

**2. Only text information will be supported(HTTP)**

**3. All the transactions will be processed within second**

**5.2 Safety Requirement**

* **Implement secure user authentication mechanisms to ensure that only authorized individuals can access the online quiz system**
* **Use HTTPS to encrypt data transmitted between the user's device and the quiz system server, preventing data interception.**
* **Encrypt sensitive data, such as user credentials and quiz questions, both in transit and at rest, to protect against unauthorized access.**
* **Utilize firewalls to control and monitor incoming and outgoing network traffic, protecting against unauthorized access.**

## Security Requirement

* + - System will use secured database
    - Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
    - System will have different types of users and every user has access constraints
    - Proper user authentication should be provided
    - No one should be able to hack users’ password
    - There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

5.4 Requirement attributes

* There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
* The project should be open source
* The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
* The user be able to easily download and install the system

**5.5 Business Rules**

**A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.**

**5.6 User Requirement**

**The users of the system are members who act as administrator to maintain the system. The members are assumed to have basic knowledge of the computers and internet browsing. The administrators of the system should have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.**

* **Users should be able to create accounts, manage their profiles, and update personal information.**
* **The system should have a user-friendly interface that is easy to navigate, ensuring a positive user experience.**
* **Ensure that the online quiz system is accessible to users with disabilities, following accessibility standards and guidelines.**
* **Users, typically instructors, should be able to create quizzes easily, add questions, set time limits, and manage quiz content.**
* **Allow users, usually students, to participate in quizzes, providing a clear and straightforward process for answering questions.**

# Other Requirements

## Data and Category Requirement

There are different categories of users .It means if the user is an administrator then he can be able to modify the data,delete, append etc. All other users except the Librarian only have the rights to retrieve the information about database. Similarly there will be different categories of books available. According to the categories of books their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

## 6.2Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; N: Non-functional Requirement; O: online quiz,Operating environment; P: Performance,Perspective,Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

## 6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

* + - Administrator: A login id representing a user with user administration privileges to the software
    - User: A general login id assigned to most users
    - Client: Intended users for the software
    - SQL: Structured Query Language; used to retrieve information from a database
    - SQL Server: A server used to store data in an organized format
    - Layer: Represents a section of the project
    - User Interface Layer: The section of the assignment referring to what the user interacts with directly
    - Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
    - Data Storage Layer: The section of the assignment referring to where all data is recorded
    - Use Case: A broad level diagram of the project showing a basic overview
    - Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system’s cases, their attributes, and the relationships between the classes
    - Interface: Something used to communicate across different mediums
    - Unique Key: Used to differentiate entries in a database