Software Requirements Specification

for

SECURE EXAM MANAGEMENT SYSTEM

Prepared by

Abhishek Scariya M B   MCA-A 2020-22

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1. Introduction

1.1 Purpose

This document provides an overview of the software under consideration. It would act as a guide for software developers and as a validation tool for clients.

1.2 Scope

The application will allow students to write exams online with added security. They can use an android device to write the exam and constraints would be placed so as to reduce any chances of misconduct.

1.3 Product perspective

1.3.1 System interfaces

This is an android application which runs on Android 5.0 and later versions. The web-side for admins runs on Chrome/Firefox browser in Windows, MAC and linux OS.

1.3.2 User Interface

The android application has buttons, menu etc which allows students to navigate by touch controls with ease. The web

app has hyperlinks, menu, etc allowing for quick navigation.

Android:

1. Sign up page

2. Login page

3. Option to see upcoming exams and send application

4. View application status, and delete if necessary

5. View exam center allocation

6. Attend exam

7. View Results

Web app:

1. Login

2. Different functions according to users

1.3.3 Hardware interface

The student only needs an average android device with good network connectivity. The web app also requires only a decent computer and network connection.

1.3.4 Software interface

System works based on client-server model. Scripting language used is Python with Flask framework. We use MySQL

database. Android app will be developed using AndroidStudio.

1.3.5 Communications interface

The system uses client server model. HTTPS protocol is
used in communication.

1.3.6 Memory constraints

This system has very small memory requirements. Android
app is small in size and runs with optimal speed.

1.4 Product function

This project aims to create an android application which
Allows students to write exams online, through their android mobile
device. Usually online exams requires the exam center to be equipped
with computers, this project eliminates that requirement by allowing
the students to use their own mobile device for writing the exam. It
also provides security features to prevent the students from using their
device to copy answers. Exams are managed by admin, and questions
for the exam is added by a representative. Exam staff are the invigilators
for the exams. Full functions are listed in section 2.

1.5 User characteristics

The ultimate user of the system is the students. Students are those users who uses the android app to write exams.

Other users are:-

Admin - The person or panel who has full control over the system. Admin manages the representatives, exams, exam centers and exam staff. They also have an overall control of the system.

Representative – They are person(s) who represents an exam board. They prepare and add the questions for exams. They are also responsible for verifying the students who have applied for an exam.

Exam staff – They are the invigilators for exams. They are allocated to different exam centers by the admin.

1.6 Assumptions and dependencies

A good network connectivity is required for writing the exam. The admin must add representatives and staff, and must have each other's contact details for smooth operation. The student is verified to write an exam by the respective representative. Students are to be present in their allocated center to write the exam, and this is made sure as they has to enter a unique security key provided by the staff present inside the center.

1.7 Acronyms and abbreviations

App - Application software

Management - Refers to Add, view and delete functions

Admin - The person or panel who has full control over the system

Representative - The person(s) who represents an exam board

Exam staff - The invigilators for exams

Student - User who uses the android app to write exams

2. Requirements

2.1 External interfaces

In terms of software engineering, there are numerous interfaces. The four main interfaces are user interfaces, hardware interfaces, Software interfaces and communication interfaces.

2.1.1 User interfaces

User interface makes it possible for users to interact with the software under consideration. For the android app, the user interface is designed using Java. The web-side UI is developed using HTML and CSS.

2.1.2 Hardware interfaces

The local address of the system will be in IPV6 format.

2.1.3 Software interfaces

The system works based on client server model. The software Modules must communicate well with each other to achieve the task.

2.1.4 Communication interfaces

HTTPS protocol is used for communication between client and server.

2.2 Functions

2.2.1 Admin functions

The admin is a person or a panel which has full control over the system. They have many exclusive functions. They are responsible for managing other users, exams, exam centers etc.

2.2.1.1 Login

2.2.1.2 Representative management

2.2.1.3 Category management

2.2.1.4 Exam management

2.2.1.5 Exam staff management

2.2.1.6 Exam center management

2.2.1.7 Exam center staff allocation

2.2.1.8 View student details

2.2.2 Representative functions

The representative is a person(s) representing a particular exam board. They are responsible for verifying students' details after they send application to write an exam. They must reject/approve the application received after verification. They also allocate accepted students to different exam centers. They prepare and add questions and answers for exams.

2.2.2.1 Login

2.2.2.2 View Profile

2.2.2.3 Student center allocation management

2.2.2.4 View and approve student applications

2.2.2.5 Exam question generation

2.2.2.6 View answer key

2.2.2.7 View all results

2.2.3 Exam staff functions

Exam staff are the invigilators for the exams. They are allocated to various exam centers for different exams by the admin. They must maintain discipline and order within the exam center and watch out

for any misconduct. They provide the students present in the exam center with their unique security key so they can write the exam.

2.2.3.1 Login

2.2.3.2 View profile

2.2.3.3 View center staff allocation

2.2.3.4 View student center allocation

2.2.3.5 View exam

2.2.4 Student functions

Students are the ultimate end users of this system. They are those users who use the android application to write the exam. They must register on the app, and apply for the relevant exam. They can cancel an application if they made some error and also view its status. They must check their allocation and get ready to write the exam from the exam center allocated to them.

2.2.4.1 Registration

2.2.4.2 Login

2.2.4.3 View exams

2.2.4.4 Send application

2.2.4.5 View application status

2.2.4.6 View student center allocation

2.2.4.7 Attend exam

2.2.4.8 View result

2.3 Usability requirements

Students don't need any technical knowledge to use the application. However they are to follow the procedure and rules of writing an exam. Exam staff has very few functions in web side, which doesn't need any technical knowledge besides experience with basic use of computer. Representative has many functions but they don't need technical expertise. However they are knowledgeable person(s) sent by different exam boards.

2.4 Performance requirements

The performance must be good. The system shouldn't take much time to boot up. The Android device must have android 5.0 and higher.

2.5 Database requirements

The data must be stored in a secure manner. MySQL database is being used. Data is stored in tabular format, and is normalized.

2.6 Design constraints

The design is quite simple, to achieve optimal performance.

Since its used to write exams, the design is minimal.

2.7 Software system attributes

The android app should run in any Android device with Andoid

5.0 or higher. The web app should run on Chrome or firefox in Windows,

Mac or Linux OS.

3. Verification

This is where we check that all of the above requirements have been

satisfied by the system. The functional and non-functional requirements

Have been satisfied by the system and can be checked by stake holders.

4. References

Software requirements specifications document for ReqView

Ieeexplore.ieee.org

www.researchgate.net