Software Requirements Specification
for
Online Class and Examination System

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8 March 2021

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Revision History

Revision	Date	Author(s)	Description
1.0	06.03.2021	Kamelia Zaman	
2.0	07.03.2021	Tasmim Sultana	
3.0	08.03.2021	Sabrina Afrin	
4.0	09.03.2021	Umma Salma	
5.0	10.03.2021	Fatama Jannat	

Chapter 1

Introduction

For decades, education was relegated to stifling classrooms with blackboards and uncomfortable desks. Today, students of all ages and experience levels have far more options including online classes. Again there is sometimes when doing classes and giving examinations physically can become very tough such as global pandemic, critical weather etc, then online educational portal can be more reliable.

1.1 Purpose

To Create this Application that provides the ability, without being physically presented in classroom, to manage classes and examinations, keep record of each class, review lectures immediately, submit assignments and communicate with peers and professors, make available question banks of previous tutorials and semesters and solve, make economical-friendly, take benefits of auto-grading that lessens the stress of checking answer scripts manually, check plagiarism of each answer, make flexible learning schedules.

1.2 Intended Audience

- Developers
- Project testers
- Marketing managers

1.3 Intended Use

1. Developers: Developers can use this SRS to easily understand what's the project about, which part they should focus more, which part to improve, find if there is any scope to add new features or function for any upgrade.

2. Project testers: Testers can use this SRS to test the software as per requirements. This will make the testing more organised as from SRS testers can easily get the idea where to look and what error or bug they should be looking for.

3. Marketing managers: Marketing department can use this SRS to get an idea about what they are going to promote and what are the features of this project and how this features will help the clients or users.

1.4 Product Scope

Basically this application is for students and teachers to conduct classes and examinations remotely. This is completely a new application that we will build from scratch which will contain some features and will ease up the difficulties that students and teachers are facing when they can't conduct offline classes and examinations.

Benefits of this web application:

1. Both teachers and students can use this exam app from home.

2. Teachers can upload their class recordings for the students.

3. Students can find lecture slides uploaded by their teachers.

4. Teachers can keep a record of class attendance by taking a sudden test in the class and record the marks.

5. Students can find previous tutorials and final question papers uploaded by teachers or admin.

6. Students can see the practice questions uploaded by teachers for them to practise before attempting any final exams to check their skills .

7. Students can attend tutorial examinations which are uploaded by teachers in the app.

8. Students can find their tutorial marks instantly for every quiz exam and the marks will also be stored in teacher's records.

9. Teachers can see all of his students' performance and their level from their performances in previous examinations.

10. Students can explore blogs related to their interests.

11. Students can create a forum among themselves and discuss any topic with others.

12. Students can directly message the teachers if they need help.

Objective of our web application is to:

1. Provide facilities for keeping student records to teachers.

2. Provide facilities for attending exams and classes to students.

Goals:

1. Our goal is to ensure that students wouldn't get behind when there's no scope for conducting offline classes.

2. We are providing online service so that students can keep track with the classes.

3. Teachers can view students performance easily and take care of them.

4. Students can enrich their knowledge reading the blogs.

1.5 Risk Definition

1. For unstable network connection, during the sudden test, any student can get disconnected.

2. Too many user at a same time can cause traffic.

3. As the storage is fixed, too many files can cause storage exceed.

Chapter 2

Overall Description

We are going to build an application that will provide very useful services to both students and teachers when it's difficult for them to conduct offline classes. It will be a common platform for service takers (students and teachers) and service provider (institution authority). This is completely a new product and we are going to build it from scratch.

2.1 User Classes and Characteristics

This application helps teachers to take online classes mainly in this pandemic situation. But still applicable after ending the pandemic as this application have many ways to keep lecture updated and helps student to have a good preparation and teacher can easily track on their students.

1. users can be teachers

2. users can be students

2.2 User Needs

This application is for taking online classes also share materials through online platform. Teachers can be interactive in this way and students can have the best help from teachers as well as their friends. They can view lectures, slides also take exam to have a brainstorming. Also they can browse the articles. Teachers can give advises also can announce a important issues. Students have a subject code to login the particular class and access the materials.

2.3 Operating Environment

Operating Environment for Online Class and Examination System application are:

1. Operating System: Operating systems those support browsing.

2. Database: SQL.

3. Platform: Python, django Framework

2.4   Constraints

1. We have to develop the application in python programming language.

2. The developed application must work in client's operating system which can be Unix, Windows, Mac or android.

3. We have to complete this app within 4 months.

2.5   Assumptions

1. Users are comfortable with the English language.

2. Users have prior information about online examination

3. Users have basic knowledge and are comfortable using the general-purpose application.

4. Users have devices that support internet connection.

Chapter 3

Requirements

3.1   Functional Requirements

1. As a student, I want login system with my student ID to my personal workspace so that I can find my study materials there and attend examinations.

   - Success
     - Valid student can log in and can see home screen.
   - Failure
     - Incorrect password/email address
     - Check your internet connection

2. As a student I want recording of the class lectures so that I can view them later if I'd been absent in a class.

   - Success
     - Students can watch all the class records uploaded by the teacher .
     - Video opens
   - Failure
     - Content no found
     - Check your internet connection

3. I want discussions facility so that I can discuss on topic with my classmates.

   - Success
     - Student can discuss with their teammates.
     - Chat option (Direct or in group).
   - Failure
     - You have no forum .
     - Check your internet connection

4. As a student, I want to have recent update over the topics so that I can catch the flow of classes.

   - Success
     - Students can watch all the class records uploaded by the teacher.
     - New updates
   - Failure

– Course not found.

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– Check your internet connection .

5. As a student,I want previous sample questions or some practice questions so that I can get idea of question pattern for a particular course.

- Success :
  - Student can view previous year questions
  - what teachers upload
  - what previously uploaded
- Failure
  - Course not found .
  - No new updates .
  - Check your internet connection .

6. As a student, I want auto grading system so that I can view my progress instantly.

- Success
  - Students can get evaluation of their examination instantly. If student is absent in any exam then that will be counted as 0.
  - Correct answers and wrong answers are marked. No negative marking.
  - Your level is good/bad/excellent in comparison to others.
- Failure
  - Unsuccessful submission.
  - Attend at least one exam to see your grades.

7. As a student, I want solution sheet of questions so that I can review correct answers.

- Success :
  - Students can view answer sheet for every examination they attended.
  - Search for course no. and test no. to find answer sheet.
- Failure
  - Unavailable question no.
  - Solution sheet for this exam hasn't been published yet.
  - Page not found.
  - Check your internet connection.

8. As a student, I want to see the highest mark on a test so that I can be more competitive.

- Success
  - Students will be able to view highest obtained mark of each test.
  - Search for course no. and exam no. to find who obtained highest mark.
- Failure
  - Result not published yet.
  - Exam no./ course no. not found.
  - Page not found.
  - Not applicable for practice questions.

9. As a student I want to read articles on various topic so that I can enrich my knowledge.

- Success
  - After entering the page student can select topic from the blogs menu.

- – Students will find various journal based on their interests.
- – Journal available.
- – Bookmark options .
- – See more.
- Failure :
  - – Unavailable question no.
  - – Solution sheet for this exam hasn't been published yet.
  - – Article not found.
  - – Check your internet connection .

10. As a student I want a class attendance system so that I can make sure that each student join my class.

- Success :
  - – Student test will be happened for taking attendance at the middle and end of the class. This will be happened automatically while attending the practice exam.
  - – Teachers will see number of attendees for each of the class.
  - – Name of the present students.
  - – 'X' has attended no class.
- Failure
  - – No class, no student present.
  - – Class rescheduled.

11. As a student I want to keep a record of the performance of my students so that I can get idea of their progress.

- Success :
  - – Automated rank will be created by the marks they get. (Attendance marks+ tutorial marks)
  - – Teacher can see his/her student progress.
  - – Your best student is 'x'.
  - – 'x' didn't attempt any exam . Take care of him/her.
- Failure
  - – No record available.
  - – First select your students and send them an invitation to your group.

12. As a student I want topic wise question so that I can have a good preparation.

- Success :
  - – Found the topic.
  - – View the question.
  - – Year wise and topic wise listed.
- Failure
  - – No such topic found.

13. As a student I want to inform teacher so that I can get any help or leave.

- Success :
  - – Teacher Founded.
  - – Compose message.
  - – Send Message.
  - – Message Delivered.
- Failure :
  - – Teacher not found.

- – Message not sent.
- – Unseen.

14. As a student I want to chat with students so that they can get help from me.

  - Success :
    - – Message Sends.
    - – Get messages.
  - Failure :
    - – Message not sent.
    - – Check your internet connection .

15. As a student I want to run my codes which I get from students with online IDE so that I can check them instantly.

  - Success :s
    - – Code compiled successfully.
    - – show outputs.
  - Failure
    - – compilation error.
    - – Time limit exceed.

16. As a student I want to submit my assignments so that I can complete my tasks.

  - Success :
    - – Upload your assignment.
    - – Hand in.
    - – Successfully submitted.
  - Failure
    - – Uploading error.
    - – Not submitted.

17. As a teacher I want to set deadlines so that I can see which students submit in time.

  - Success : Students will find various journal based on their interests
    - – Set due date.
    - – 30 students submitted.
  - Failure
    - – Connection lost.

18. As a teacher I want to assignments grading options so that I can grade my students.

  - Success :
    - – Choose grade.
    - – You graded 'x'.
  - Failure :
    - – 'x' hasn't submitted yet.

19. As a teacher I want to detect plagiarisms so that I can ensure none copied.

  - Success :
    - – Check report.
    - – No match found.
  - Failure
    - – 'x' hasn't submitted yet.

3.2   Non Functional Requirements

Performance Requirement

- Each page must load within a few seconds.

- The Application should be capable enough to handle a minimum number of students ,who can affect with its positive performance.

- Response to any kind of user interaction within a few seconds

- The application should be portable. So moving from one OS to other OS does not create any problem.

- Each request should be processed within 10 seconds.

Audit Tracking

- Privacy of information, the export of restricted technologies, intellectual property rights, etc. should be audited.

- Every unsuccessful attempt by a user to access an item of data shall be recorded on an audit trail.

Safety Requirements

- The system won't cause of harm of any users.

Security Requirements

- Student information should be protected by strong database management system.

Error Handling

- The system should be able to recover any kind of error or at least show a message as response.

Appendices

Appendix A

Glossary

SRS: A software requirements specification (SRS) is a document that captures complete description about how the system is expected to perform .It lays the framework that every team involved in development will follow. It's used to provide critical information to multiple teams — development, quality assurance, operations, and maintenance.

SQL : SQL (Structured Query Language) is a domain-specific language used in programming and designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). It is particularly useful in handling structured data.

OS : An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs. For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware