Software Requirements Specification

for

E-Learning Portal

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Revision History

Name	Date	Reason For Changes	Version
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1. Introduction

1.1 Project Scope

The concept of 'virtual classroom' has started gaining ground in several academic circles. The growing popularity of this concept can be attributed to its emphasize on collaborative learning based on cooperative efforts among faculty and students, active participation and interaction on the part of both students and instructors, and active sharing of new ideas and information. But the novelty of the concept lies in effective access to learning even from personal computers at home or work.

1.2 References

1. *https://www.scribd.com/doc/24879465/E-Learning-System-Specification*
2. *http://thescipub.com/PDF/jcssp.2010.285.295.pdf*
3. *http://www.academia.edu/2824745/E-LEARNING_FOR_SOFTWARE_ENGINEERING_A_CASE_STUDY_ON_TEACHING_INFORMATION_SYSTEMS_ONLINE_GROUP_PROJECT_WITH_EXTREME_PROGRAMMING*

1.3 Product Features

The E-Learning system is an education-focused product that aims to provide free online courses by experiences professors. Courses include recorded video lectures, peer-reviewed assignments and tests. Students can give their valuable feedback and they'll receive a certificate on completion of their courses.

2. Overall Description

2.1 User Classes and Characteristics

This application is of great use to the educational community, for people who are currently using or are interested in using E-Learning Portal.

Primary Users:

- ***Professors** – The professors have admin privileges and are well versed with the available utilities so as to maximize benefit using requisite functions.*
- ***Students** – The students have read-only access to the lectures and tests, and ability to submit assignments and feedback.*

2.2 Operating Environment

1. *The E-Learning System shall operate with the any web browser.*
2. *The E-Learning System shall operate on Windows and Ubuntu operating system*

2.3 Design and Implementation Constraints

Not Applicable.

2.4 User Documentation

The system shall provide a online link to the learning resources and functionality available on the E-Learning Portal for the understanding of the user.

2.5 Assumptions and Dependencies

1. *Each User must have a User ID and password.*
2. *256 Kbps Internet connection is a must.*

3. External Interface Requirements

3.1 User Interfaces

The software provides mainly two user interfaces, one pertaining to the students and other for the professors.

3.2 Hardware Interfaces

It must be PC computer to link to E-Learning system.

3.3 Software Interfaces

Must have a web browser to access the E-Learning System.

3.4 Communications Interfaces

This software uses http for content transfer. The efficacy is significantly affected by available bandwidth and data transfer rates as a higher bandwidth allows smaller time lags. Current

implementation ignores encryption issues as instructors are unlikely to require discussion in a secure environment.

4. Functional Requirements

We describe the functional requirements by giving various use cases:

4.1 Creating Accounts

Primary Actor: *Student / Professor*
Precondition: *Internet connection available.*

Main scenario:
1. The system shall automatically create accounts for each student regardless to the number of course he/she enrolls in.

2. Create one account for course Professor regardless to the number of courses that he/she teaches.

Alternate Scenario:
1. *Network failure*
2. *Account with same email ID exists*

4.2 Creating Courses

Primary Actor: *Professor*
Precondition: *User logged in*

Main scenario:
1. *Integration with registration system: The system shall periodically upload the latest registrar's classes list to determine courses that are offered in the portal.*

2. *The system shall generate course and determine the current set of students that enrolled in that course.*

3. *The system should allow the Professor to update course content.*

Alternate Scenario: *Course with same name exists*

4.3 Online Tests

Primary Actor: *Student / Professor*
Precondition: *User logged in*

Main scenario:
1. The system shall instructor to upload quizzes.

2. The system shall allow Professors to upload answer key to the System.

3. The system shall allow student to answer quizzes.

Alternate Scenario: *Network failure*

4.4 Grade Management

Primary Actor: *Student / Professor*
Precondition: *User logged in*

Main scenario:
1. Allow grades to be entered online: The system shall allow instructors to enter and modify grades online.

2. Allow students to access their grades online: The system shall allow student to log in their account and check their grades at any time.

Alternate Scenario: *Wrong grade uploaded*

4.3 Assignment Management

Primary Actor: *Student / Professor*
Precondition: *User logged in*

Main scenario:
1. ***Accept submissions in multiple formats****: The system shall accept submissions in multiple formats, including .zip, .cpp , .txt, .doc, etc.*

2. ***Support for late submissions:*** *The system shall provide information about late submissions, and also disallow submissions after a certain period of time.*

3. ***Integration with grade management:*** *assignment grades can be automatically posted to student account.*

4 ***Peer- Review Assessments:*** *The system shall allow students to view and assess each other's assignments.*

Alternate Scenario: *Wrong assignment uploaded by student*

4.6 Feedback Management

Primary Actor: *Student / Professor*
Precondition: *User logged in*

Main scenario:
1. The system shall allow students to submit feedback of the course on its completion.
2. The system shall allow Professors to view the course feedback submitted by the students.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

1. Response Time

Average response time shall be less than 2 second.

2. Throughput

The system shall accommodate 1000 booked per minute.

3. Recovery Time

In case of a system failure, redundant system shall resume operations within 30 seconds. Average repair time shall be less than 1 hour.

4. Start-up/Shutdown Time

The system shall be operational within 1 minute of starting-up.

5. Capacity

The system shall be able to accommodate 4000 concurrent users.

6. Utilization of Resources

The system shall store in the database no more than one million transactions.
If the database grows over this limit, old transaction shall be backed up and deleted from the operational database.

5.2 Safety Requirements

This requirement does not apply for our software as this does not pose a threat in any way.

5.3 Security Requirements

1. The files generated by the user are only accessible by the admin and application should store these files in MySQL database and must not share them.

2. Firewall Protection: The E- Learning software portal shall run inside a firewall.

3. The policy framework should be accessible only by teachers.

5.4 Software Quality Attributes

Quality has a number of attributes some of the important attributes for this software are

1. Portability:
As this software is to work on multiple platforms portability is an essential attribute and we ensure this by using a compatible programming language.

2. Availability:
E- learning Portal shall be available to users all the time.

3. Scalability:
Scaling the system to large number of users: large courses will have hundreds of students.

4. Efficiency:
Checking that the system provides the right tools to support all its features.

5. Testability:
As a basic characteristic the software needs to be testable to ensure correctness.

6. Other Requirements

INSTALLATION:

A Readme for installation instructions and required dependencies will be provided with the software. An automated installer script will also be provided.