ASSIGNMENT #03

SOFTWARE ENGINEERING

SUMITTED BY: ***MUSKAN FAISAL***

DEPARTMENT: ***BSCS***

SUMITTED TO: ***MAM. MAIDA***

SAP ID: ***5112323003***

SRS DOCUMENT OF

“EDUCATION AND E-LEARNING"

1. Introduction

1.1 Purpose

This document specifies the software requirements for the "Education and E-Learning Platform." The purpose of this document is to outline the functional, non-functional, and design constraints for the system to ensure a clear understanding of its requirements and guide the development process.

1.2 Scope

The "Education and E-Learning Platform" is a comprehensive software solution designed to facilitate online education and training. The platform enables educators to create courses, conduct live classes, and evaluate students' progress. This document provides detailed descriptions of system functionality, performance criteria, and integration requirements.

1.3 Definitions, Acronyms, and Abbreviations

- **SRS**: Software Requirements Specification
- **API**: Application Programming Interface
- **UI**: User Interface
- **LMS**: Learning Management System
- **GDPR**: General Data Protection Regulation

1.4 References

- IEEE Standard for SRS Documentation
- Stakeholder Agreements and Project Proposal
- Industry Guidelines for Online Education Platforms

1.5 Overview

This document is organized as follows:

- **Section 1**: Introduction
- **Section 2**: Overall Description
- **Section 3**: Specific Requirements
- **Section 4**: Appendices

2. Overall Description

2.1 Product Perspective

The "Education and E-Learning Platform" is a web-based application designed to provide a seamless learning experience. The platform integrates with existing LMS systems and offers robust capabilities for educators, learners, and administrators. Technologies such as React, Node.js, and cloud services like AWS are utilized for scalability and performance.

2.2 Product Functions

The key functions of the platform include:

1. User Registration and Authentication
2. Course Creation and Content Management
3. Real-time Virtual Classrooms with Video Conferencing
4. Progress Tracking and Analytics
5. Assignment Submission and Evaluation
6. Integration with Third-party Tools for Payment and Scheduling

2.3 User Classes and Characteristics

- **Administrators**: Manage the platform, user accounts, and monitor system performance.
- **Educators**: Create and manage courses, host live sessions, and evaluate student performance.
- **Students**: Enroll in courses, access content, participate in discussions, and complete assignments.
- **Support Staff**: Provide technical assistance to users.

2.4 Operating Environment

- **Platforms**: Windows, macOS, Linux
- **Browsers**: Chrome, Firefox, Safari, Edge
- **Servers**: Hosted on AWS Cloud Infrastructure

2.5 Constraints

- Compliance with GDPR and other regional data privacy regulations.
- Scalability to support 10,000+ concurrent users.
- Compatibility with modern browsers and operating systems.

2.6 Assumptions and Dependencies

- Users have access to stable internet connections.
- Integration with third-party APIs for video conferencing, payment processing, and email notifications.
- Availability of necessary hardware resources for server deployment.

3. Specific Requirements

3.1 Functional Requirements

Feature 1: User Authentication and Authorization

- The system shall provide secure user registration and login functionalities.
- Role-based access control shall ensure appropriate access levels for different user types.

Feature 2: Course Management

- Educators shall be able to create, edit, and delete courses.
- Multimedia content such as videos, PDFs, and quizzes can be added to courses.

Feature 3: Virtual Classrooms

- The system shall support live video streaming, screen sharing, and chat functionalities.
- Recorded sessions shall be available for on-demand viewing.

Feature 4: Progress Tracking

- Students shall have access to a dashboard showing their course progress.
- Educators shall generate performance reports for individual students or groups.

3.2 Non-Functional Requirements

- **Performance Requirements: The** system shall handle up to 10,000 concurrent users without performance degradation.
- Page load times shall not exceed 2 seconds under normal conditions.

Security Requirements

- Data shall be encrypted in transit and at rest using industry-standard encryption methods.
- Multi-factor authentication (MFA) shall be implemented for user accounts.

Usability Requirements

- The platform shall provide a responsive UI for compatibility with mobile and desktop devices.
- Accessibility standards (WCAG 2.1) shall be followed to ensure usability for all users.

3.3 External Interface Requirements

User Interfaces

- A web-based UI shall provide easy navigation and intuitive design for users.

Hardware Interfaces

- No specific hardware integration is required.

Software Interfaces

- The platform shall integrate with third-party APIs like Zoom for video conferencing and Stripe for payment processing.

3.4 System Features

Feature 1: Assignment Submission

- Students can upload files or complete online forms for assignments.
- Educators can review and provide feedback on submitted assignments.

Feature 2: Analytics and Reporting

- Real-time analytics for course engagement and performance metrics.
- Administrators shall access system usage reports.

4. Appendices

4.1 Glossary

- **Virtual Classroom**: An online environment where live teaching and interaction occur.
- **Accessibility**: Design practices ensuring usability for people with disabilities.

4.2 References

- "Best Practices for E-Learning Development"
- "Educational Technology Standards" by [Author/Source]

4.3 Revision History

Version	Date	Description	Author
1.0	2025-01-06	Initial Draft	[MUUSKAN FAISAL]
1.1	[Date]	Updates Based on Stakeholder Feedback	[RIDA FATIMA]