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**Department of Information and Communication Technology**

**Faculty of Technology**

**University of Ruhuna**

**Database Management Systems Practicum**

**ICT 1222**

**Assignment 02 – Mini Project**

**SRS**

Group 09

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# System Description

## Purpose

A University Student Learning & Management System (SLMS) is a specialized digital platform that optimizes higher education. It centralizes academic resources, facilitates student-teacher interaction, and tracks progress, enhancing the learning experience at universities and colleges.

## Scope of Student Learning & Management System

The scope of a Student Learning & Management System (SLMS) is broad and multifaceted, encompassing various aspects of education and training. Here's an overview of the key components within the scope of an SLMS.

* Course Management: -

SLMS systems manage course creation, organization, and delivery. This includes uploading course materials, creating assignments, quizzes, and assessments, and structuring the course curriculum.

* User Management: -

SLMS platforms handle user registration, authentication, and authorization. They categorize users into roles such as administrators, instructors, and students, each with specific permissions.

* Content Management: -

SLMSs store and organize learning content, including documents, videos, images, and interactive materials. They provide version control and ensure content availability to authorized users.

* Assessment and Evaluation: -

SLMS facilitate the creation and administration of quizzes, tests, and assignments. They enable instructors to grade assignments, provide feedback, and calculate overall course grades.

* Progress Tracking: -

These systems track and record student progress, including course completion, test scores, and participation levels. They generate reports to monitor individual and group performance.

* Communication and Collaboration: -

SLMS offer communication tools such as discussion forums, chat, and messaging, fostering interaction between instructors and learners and supporting peer collaboration.

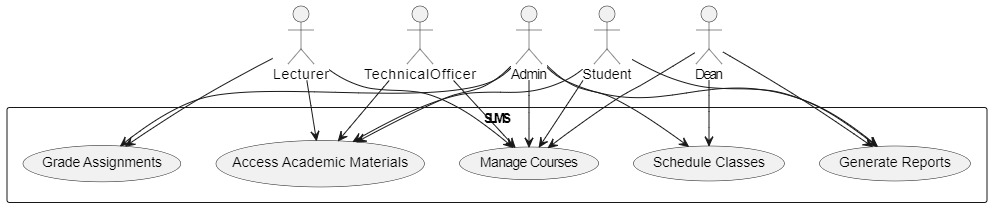
* Analytics and Reporting: -

SLMS systems provide analytics dashboards for educators to assess the effectiveness of courses. They offer insights into learner engagement, completion rates, and assessment outcomes.

## System Overview

The SLMS is a pivotal web-based application designed to efficiently manage academic and administrative data for Faculty of Technology. It serves as a foundational tool for enhancing educational and administrative processes. With user-specific features tailored for students, lecturers, deans, and technical officers, it provides a holistic solution for data management. Security considerations are paramount, ensuring the confidentiality and integrity of user data. This high-level overview sets the stage for an in-depth exploration of the system's capabilities in subsequent documentation sections.

## SLMS Diagram



# Features of the system to be implemented.

# Function Requirements

## Function Requirements of Admin

The administrative role within the Student Learning & Management System (SLMS) typically involves various functions and responsibilities to ensure the smooth operation of the system and effective management of academic and administrative data.

* User Management
* Course Management
* Gradebook Management
* Class Schedule Management
* Data Backup and Recovery
* System Configuration
* Security and Compliance
* System Maintenance and Updates

## Function Requirement of Dean

The role of a Dean within a Student Learning & Management System (SLMS) typically involves specific functions and responsibilities related to academic oversight and management.

* Course Oversight
* Scheduling Authority
* Academic Resources
* Student Academic Progress
* Faculty Supervision
* Emergency Response and Crisis Management

## Function Requirement of lectures

Lecturers play a crucial role in the Student Learning & Management System (SLMS) to facilitate teaching and interacting with students.

* Class Management
* Content Delivery
* Assessment and Grading
* Collaboration and Group Work
* Access to Student Data
* Accessibility Considerations

## Function Requirement of Technical Officer

Technical Officers in the context of a Student Learning & Management System (SLMS) are responsible for the technical maintenance, support, and infrastructure of the system.

* System Administration
* Database Management
* Security and Access Control
* Integration with Other Systems
* User Support and Training
* Backup and Disaster Recovery

## Function Requirement of Students

Students play a central role in the Student Learning & Management System (SLMS) as they engage with course materials, interact with instructors, and track their academic progress.

* Dashboard and Course Enrollment
* Course Access and Materials
* Assignment Submission
* Quizzes and Assessments
* Calendar and Schedule
* Academic Support Resources

# Non-Functional Requirements

Non-functional requirements, also known as quality attributes or system qualities, specify the criteria that a system must meet in terms of its performance, reliability, usability, and other qualities that affect the system's overall effectiveness and user satisfaction.

## Performance

Response Time: -

The SLMS should respond to user interactions (e.g. page loading) within a specified time frame to ensure a smooth user experience.

Scalability: -

The system should be able to handle a growing number of users, courses, and data without significant performance degradation.

## Reliability

Availability: -

The SLMS should be available and accessible to users 24/7 with minimal downtime for maintenance or upgrades.

Fault Tolerance: -

The system should continue to function correctly in the presence of hardware or software failures.

## Security

Data Security: -

User data, including personal and academic information, should be stored securely and protected from unauthorized access or breaches.

Authentication and Authorization: -

Only authorized users should be able to access specific features and data.

Data Encryption: -

Data transmission between the user and the SLMS should be encrypted to ensure privacy.

Audit Trails: -

Maintain logs and audit trails to track user activities and system changes for security and compliance purposes.

## Usability

User Interface (UI) Design: -

The SLMS should have an intuitive and user-friendly interface that is easy to navigate and understand.

Accessibility: -

The system should comply with accessibility standards to accommodate users with disabilities.

Performance Efficiency: -

The system should not cause unnecessary delays or require excessive resources from users' devices.

## Scalability and Capacity

Load Handling: -

The SLMS should handle concurrent users, courses, and data loads efficiently.

Resource Utilization: -

Efficiently use server resources (CPU, memory, bandwidth) to avoid performance bottlenecks.

## Interoperability

Integration: -

The SLMS should be able to integrate with other institutional systems (e.g., student information systems, email) and third-party tools (e.g., content management systems, plagiarism detection tools).

## Compliance

Regulatory Compliance: -

Ensure that the SLMS complies with relevant data protection and privacy regulations (e.g., GDPR, FERPA).

Accessibility Standards: -

Comply with accessibility standards (e.g., WCAG) to provide equal access to all users.

## Data Management

Data Backup and Recovery: -

Regularly back up data and have mechanisms in place for data recovery in case of data loss or system failures.

Data Retention: -

Define policies for data retention and archival of course materials and student records.