



Project Report

Project Title: Learning Management System
Course Title: Software Development Project- II and Industrial Tour
Course Code: CSE 3116

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Learning Management System

1. Introduction

i. Technical Information and Background

The Learning Management System (LMS) is a web-based platform designed to facilitate educational interactions between administrators, teachers, and students. Developed using modern web technologies.

- Backend: Spring Boot (with Spring Security for authentication and authorization).
- Frontend: HTML, CSS, JavaScript, Bootstrap
- Database: MySQL

ii. Objective of the Project

The objective is to build a platform that facilitates effective interaction between students, teachers, and administrators by streamlining classroom management, course materials, announcements, and routine handling.

iii. Scope of the Project

This project contains three modules-

- Admin: User Management.
- Teacher: Classroom creation, Routine management, Content upload (topic lists, course materials), Announcement posting.
- Student: Join Course, Viewing Course materials and topics.

iv. Benefit or Significance of the Project

- Centralized educational management platform.
- Easy access to learning resources and course organization.
- Simplified administrative tasks.

2. Requirement Analysis

i. Feasibility Studies:

- Technical Feasibility: Uses modern technologies like Spring Boot and Bootstrap, ensuring maintainability and scalability. MySQL offers reliable data management.
- Operational Feasibility: User-friendly interfaces for different roles.

ii. System Requirements

- Software: JDK 11+, Spring Boot, MySQL, and web browsers.
- Hardware: PC, Laptop, or any device running Java.
- Database: MySQL for storing user data and health records.

iii. User Requirements

a. Functional Requirements

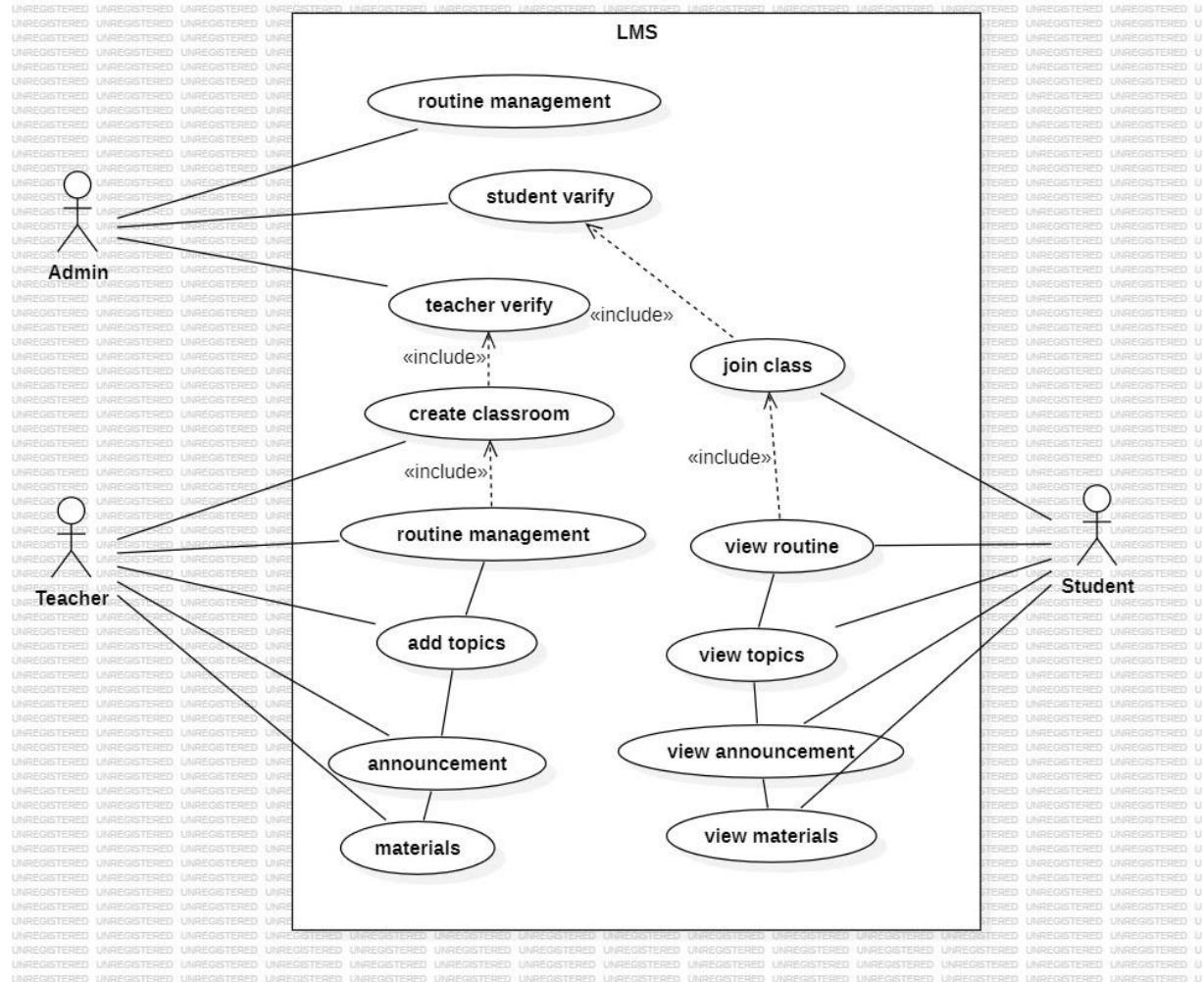
- Teachers: Manage classrooms, routines, and materials.
- Students: Join courses, access resources.
- Admins: Manage users and content.

b. Non-functional Requirements

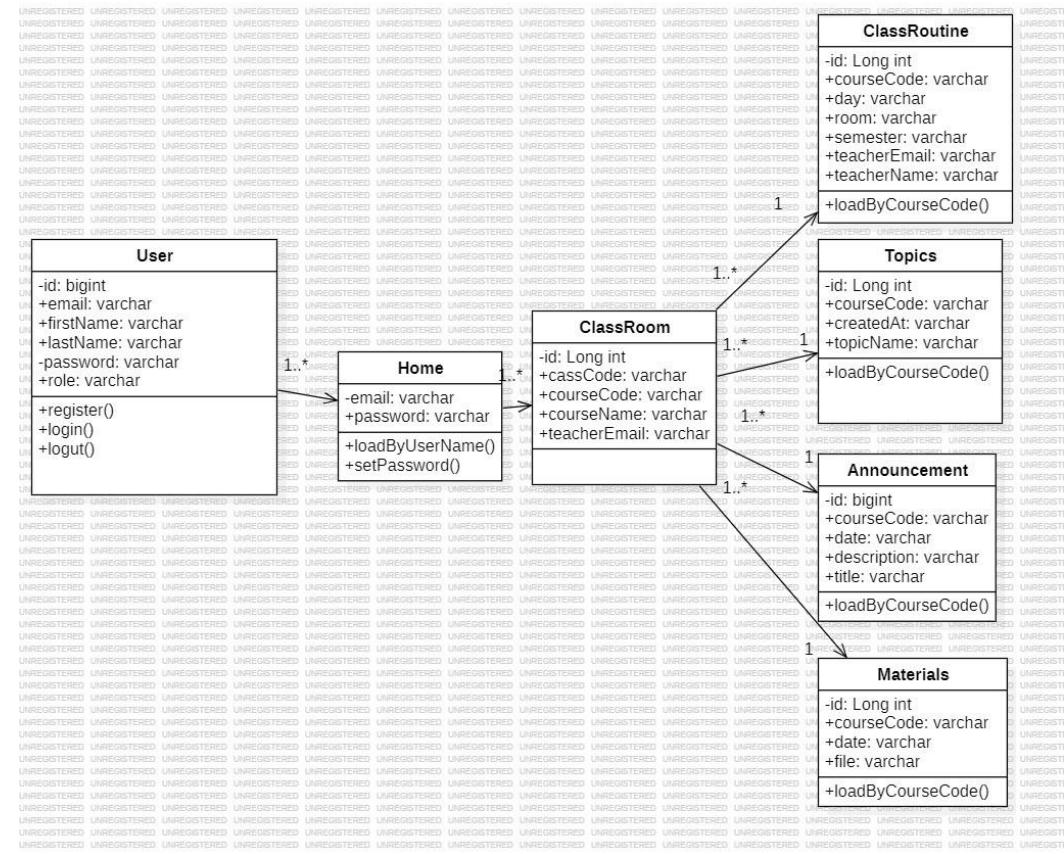
- Accessibility: Accessible via PCs and mobile devices.
- Usability: User-friendly interface.
- Scalability: Support multiple concurrent users.

3. System Model

i. Use case Model

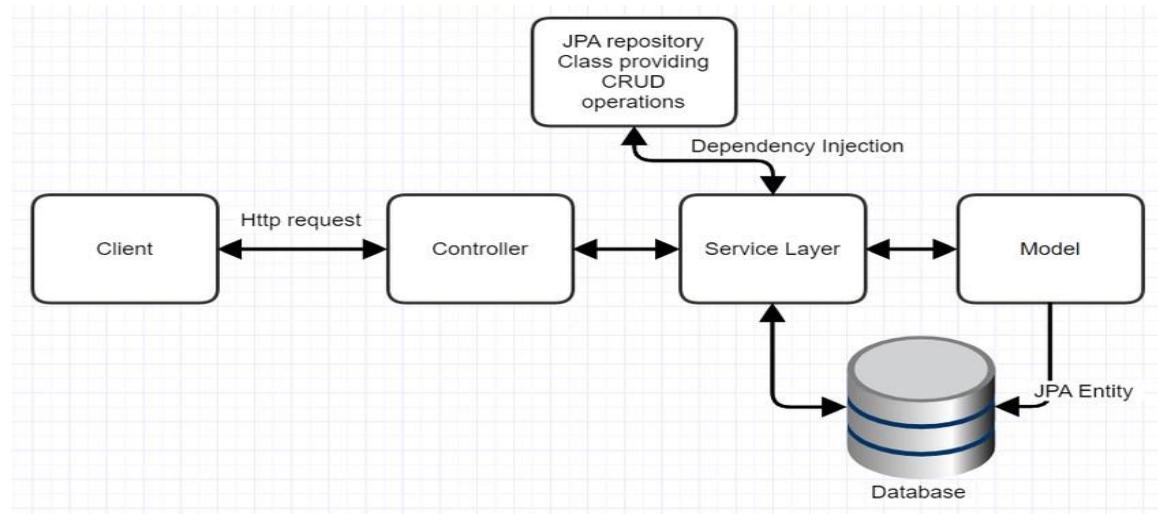


ii. Class Diagram:



4. Design, Implementation, and Testing

i. System Design/Architecture of the Project



[Home Page](#)

[HOME](#) [ABOUT](#) [CONTRIBUTOR](#) [LOGIN](#)

Registration Page



[HOME](#) [ABOUT](#) [SOMETHING](#) [LOGIN](#)

SUCCESS message

First Name	Enter First Name
Second Name	Enter Last Name
Email	Enter Email
Role	STUDENT
Password	Enter Password

SUBMIT

Login Page



HOME ABOUT SOMETHING [LOGIN OR REGISTER](#)

LEARNING MANAGEMENT SYSTEM



Welcome Back!
Welcome to E-Learning Management System

Email

Password

[Login](#)

Dont have an account? [Register Here](#)

Teacher: Home Page

The screenshot shows the Teacher Home Page. On the left is a dark sidebar with navigation links: Home, Profile, Daily Work, Topic Summary, Grading, Courses, and Class Routine. The main content area has a light background with four white boxes. The first box contains 'Create Classroom' with a 'Create Classroom' button. The second box contains 'Topic' with placeholder text 'Lorem Ipsum Dolor Sit Amet' and a 'Add Today Topic' button. The third box contains 'Grading System' with placeholder text 'Lorem Ipsum Dolor Sit Amet' and a 'Add Grade' button. The fourth box contains 'Notify' with a 'Set Notification' link and a 'Read More' button. At the top right, there are links for HOME, ABOUT, SOMETHING, and LOG OUT.

Teacher: Class Routine Page

The screenshot shows the Teacher Class Routine Page. The sidebar on the left includes 'Home', 'Profile', 'Daily Work', 'Topic Summary', 'Grading', 'Courses', and 'Class Routine'. The main area starts with a 'Class Routine' section containing input fields for Course_id, Semester, Subject, Room, Day, and Time, along with an 'Add Routine' button. Below this is a table titled 'Your Class Routines' with columns: CourseCode, Semester, Subject, Teacher Name, Room, Day, Time, and Action. One row is shown: CSE3201, 2nd, Computer Networks, TeacherFirst TeacherSecond, 340, Saturday, 10:00, with 'Update' and 'Delete' buttons.

Teacher: Course Page

The screenshot shows the Teacher Course Page. The sidebar on the left includes 'Home', 'Profile', 'Daily Work', 'Topic Summary', 'Grading', 'Courses', and 'Class Routine'. The main area features three buttons: 'Topic List', 'Add Material', and 'Add Announcement'. Below is a 'Recent Announcement' table with columns: Title, Description, Date, and Action. One row is listed: DNS, Implement Dns With Cisco Packet Tracer, 2024-12-06, with 'Update' and 'Delete' buttons. Below that is a 'Recent Materials' table with columns: File, Date, and Action. One row is listed: Im.Jpg, 2024-12-06, with a 'Delete' button. At the top right, there are links for HOME, ABOUT, SOMETHING, and LOGIN OR REGISTER.

Teacher: Add Topic Page

SIDE BAR

Logo

HOME ABOUT SOMETHING LOG OUT

Add Topic Print

Topics :

Topic Name	Created At	Action
Application Layer	2024-12-05	Delete
Network Layer Introduction	2024-12-06	Delete

Student: Home Page

Logo

HOME ABOUT SOMETHING LOG OUT

Computer Networks

CSE 3201

Join Course

Computer Networks Lab

CSE 3202

Join Course

Student: Enter Course Page

Logo

HOME ABOUT SOMETHING LOG OUT

Topic List

Recent Announcement

Title	Description	Date
DNS	Implement Dns With Cisco Packet Tracer	2024-12-06

Recent Materials

File	Date	Action
Im.Jpg	2024-12-06	Download

Admin: Home Page

The screenshot shows the Admin Home Page of a Learning Management System. On the left is a sidebar with icons for Home, Profile, Courses, Teachers, and Student. The main content area has a header with the logo 'CSE' and navigation links for HOME, ABOUT, and LOG OUT. Below this, there are two tables: one for Registered Teachers and one for Registered Students. Each table has columns for First Name, Last Name, Email, and Action (with Update and Delete buttons).

Registered Teachers :

First Name	Last Name	Email	Action
TeacherFirst	TeacherSecond	Teacher@Gmail.Com	<button>Update</button> <button>Delete</button>

Registered Students:

First Name	Last Name	Email	Action
StudentFirst	StudentLast	Student@Gmail.Com	<button>Update</button> <button>Delete</button>

ii. Implementation of the Project

The system follows an iterative development approach with emphasis on modularity and reusability.

- Backend: Spring Boot with RESTful endpoints.
- Database: MySQL.
- Frontend: Responsive design with Bootstrap.
- Authentication: Role-based access control.

iii. Testing

- Unit Testing: Verifying individual modules (e.g., course creation, user authentication).
- Integration Testing: Module interaction.
- System Testing: Validating overall functionality and performance.

5. Conclusion

The Learning Management System project successfully demonstrates a comprehensive, scalable educational platform integrating modern web technologies.

Appendix

GitHub Link: <https://github.com/sarowar02/Learning-Management-System.git>