AASTU

UNIVERSITY FOR INDUSTRY

College of Engineering

Department of Software Engineering

Internet Programming

2025/26 Academic Year

I Semester

Project Title: Design and Development of a Web Based LMS

(Learning Management System)

Members (6) **ID**

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3. Eyob Tesfaye —---------- ETS0522/16 (Team Member)

4. Fahmi Rahmet —----------ETS0544/16 (Team Member)

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Submitted To: Mr Jerusalem Fetene

Date: 19 January 20

Contents

Design and Development of Web Based LMS

Internet Programming Project Documentation

1. Introduction

This project presents the **Design and Development of a Web Based LMS** for Addis Ababa Science & Technology University (AASTU). The system is a **frontend-focused Learning Management System prototype** that demonstrates how academic information such as courses, marks, and announcements can be presented in a **single, modern, responsive interface**.

The project focuses on **user interface design, usability, navigation, and interaction**, delivered as a functional frontend prototype using modern web technologies.

2. Context

AASTU currently provides basic online portals for viewing grades and course information. However, most academic communication such as exam schedules, classroom changes, and announcements is shared through informal channels like Telegram groups. These channels are fragmented and unreliable.

The proposed LMS is intended to operate within this academic environment as a **conceptual and demonstrable frontend system** that shows how student-facing academic services can be centralized in one interface.

3. Motivation

- Students miss or duplicate important academic announcements due to scattered communication channels.
- The existing portal is visually outdated and not mobile-friendly.
- Instructors repeatedly post the same information across multiple platforms.
- There is no single dashboard that combines grades, courses, and announcements.

This project was chosen to demonstrate how **modern frontend design and interaction** alone can significantly improve user experience and engagement.

4. Objective

4.1 General Objective

To design and develop a **responsive frontend prototype** of a web-based LMS that visually and interactively demonstrates centralized academic information for students and instructors at AASTU.

4.2 Specific Objectives

1. Design role-based user interfaces for students and instructors.
2. Create student dashboards displaying courses, marks, announcements, and profile information.
3. Create instructor dashboards for posting announcements and entering marks (simulated).
4. Implement responsive UI designs for desktop and mobile devices.
5. Use mock data to simulate real academic information.
6. Apply modern UI/UX principles for clarity and accessibility.
7. Implement client-side form validation.
8. Provide intuitive navigation between LMS features.
9. Demonstrate announcement filtering by course or cohort.
10. Prepare a presentable prototype suitable for academic demonstration.

5. Corresponding Requirements

Objective	Supporting Requirement
Role-based UI	Frontend role toggle (Student / Instructor)
Student dashboard	Dashboard components with mock data
Instructor dashboard	Forms for marks & announcements (simulated)
Responsive design	Tailwind CSS breakpoints
Data simulation	Static JSON / mock services
Usability	Clear layout, icons, consistent spacing
Validation	Client-side input checks
Navigation	SPA routing using React Router
Filtering	UI-based filters for announcements
Demonstration	Clickable and interactive prototype

6. Functional Requirements (Frontend Only)

1. Display separate dashboards for students and instructors.
2. Allow users to switch roles for demonstration purposes.
3. Show a student's enrolled courses using mock data.
4. Display student marks in a structured table.
5. Display a centralized announcement feed.
6. Allow instructors to create announcements (stored temporarily in frontend state).
7. Allow instructors to enter or edit marks (simulated).
8. Filter announcements by course or department.
9. Validate form inputs before submission.
10. Support mobile, tablet, and desktop layouts.
11. Provide navigation menus and breadcrumbs.
12. Use reusable UI components for consistency.

7. Significance of the System

- Demonstrates how UI/UX improvements can solve real academic problems.
- Shows the value of centralized academic information.
- Improves student engagement through clean design.
- Reduces perceived complexity of academic systems.
- Serves as a strong frontend portfolio project.

8. Beneficiaries of the System

- **Students:** Easier access to academic information.
- **Instructors:** Clear interface for posting information.
- **University (conceptually):** Vision for a modern LMS.
- **Developers:** Learning experience in frontend system design.
-

9. Feasibility Analysis

9.1 Economic Feasibility

- No financial cost (open-source tools, student labor).
- Development requires only time and effort.
- Highly feasible within academic constraints.

9.2 Technical Feasibility

- Technologies used: HTML, CSS, Tailwind CSS, JavaScript, React.
- Mock data replaces real databases.
- All functionality achievable using frontend tools.

9.3 Operational Feasibility

- Users can intuitively understand and navigate the system.
- No deployment or backend dependency.
- Suitable for classroom demonstration.

10. SRS Overview of Existing System

10.1 Use Case of Existing System

- Students check grades on a basic portal.
- Announcements shared via Telegram or email.
- No centralized academic dashboard.

10.2 Problems and Limitations

- Fragmented communication.
- Poor UI/UX.
- No mobile optimization.
- Duplicate instructor effort.

11. Proposed System

Use Case of Proposed LMS

- Students log into a **simulated** LMS dashboard.
- Students view courses, marks, and announcements in one place.

- Instructors use a **simulated interface** to post announcements and enter marks.
- Information appears instantly in the UI for demonstration.

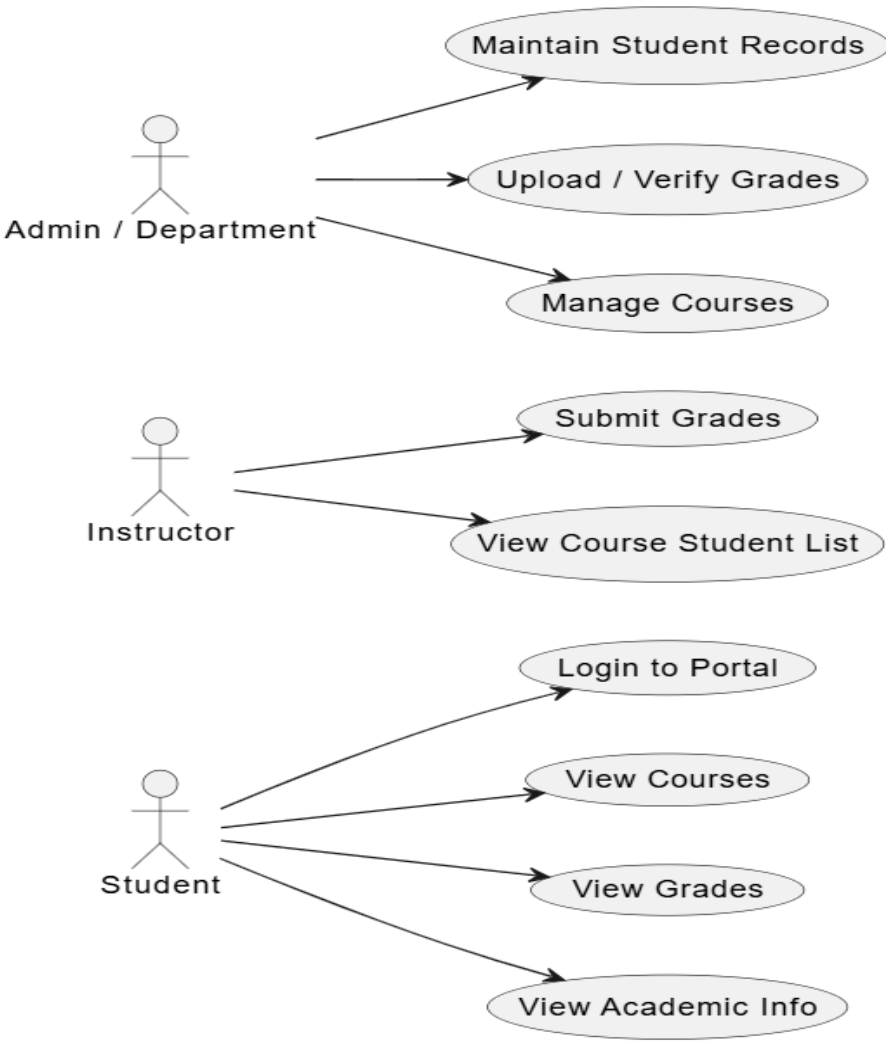
Improvement: Centralization, clarity, responsiveness, and engagement — without backend complexity.

12. Featured Products (Adaptive – Frontend Level)

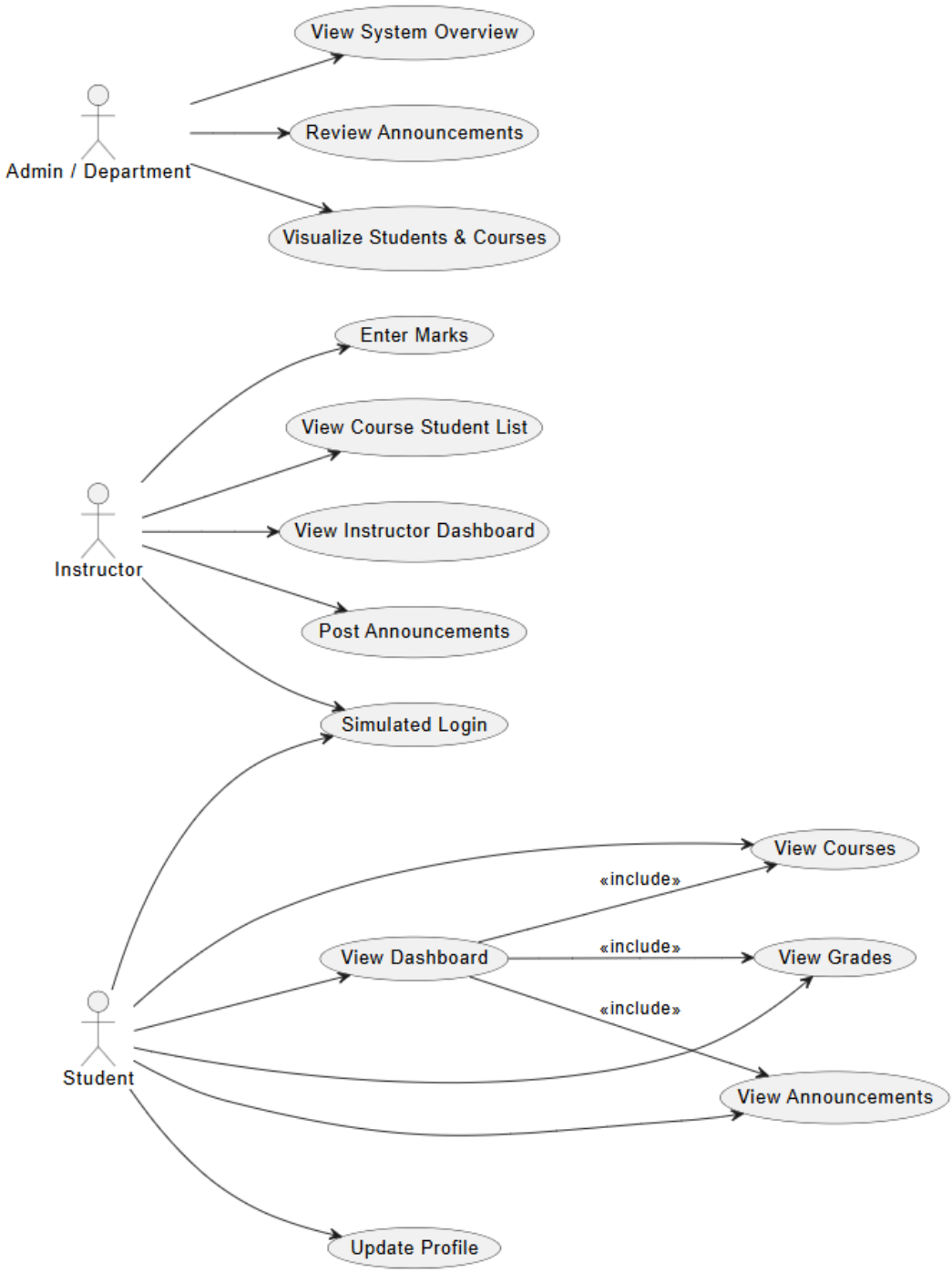
- Highlight important announcements visually.
- Show recent courses or announcements first.
- Adjust dashboard layout based on screen size.
- Emphasize frequently accessed sections.

(All adaptations are UI-based, not data-driven.)

13.Use case Diagram 13.1 For the existing System

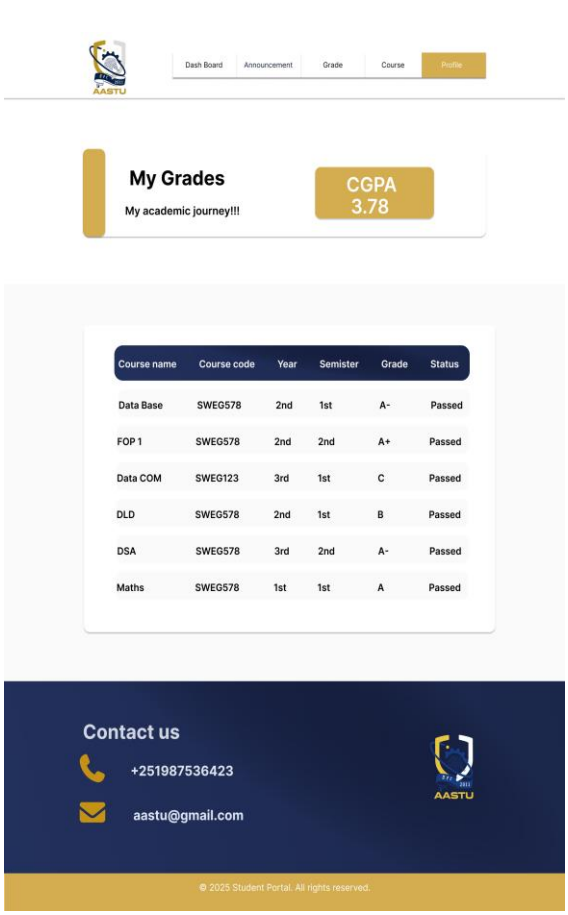


13.2 For the New System



14.Second Page – Demonstration Only

The following images show the web-based LMS user interface as designed in Figma. They illustrate the main screens for students, instructors, and admins, including dashboards, course views, grades, and announcements. All views are interactive mockups demonstrating the layout, navigation, and usability of the system. These designs serve as a frontend prototype, without any backend integration or live data


Dash Board
Announcement
Grade
Course
Profile
My Grades
My academic journey!!!
CGPA
3.78
Course name
Course code
Year
Semister
Grade
Status
Data Base
SWEG578
2nd
1st
A-
Passed
FOP 1
SWEG578
2nd
2nd
A+
Passed
Data COM
SWEG123
3rd
1st
C
Passed
DLD
SWEG578
2nd
1st
B
Passed
DSA
SWEG578
3rd
2nd
A-
Passed
Maths
SWEG578
1st
1st
A
Passed
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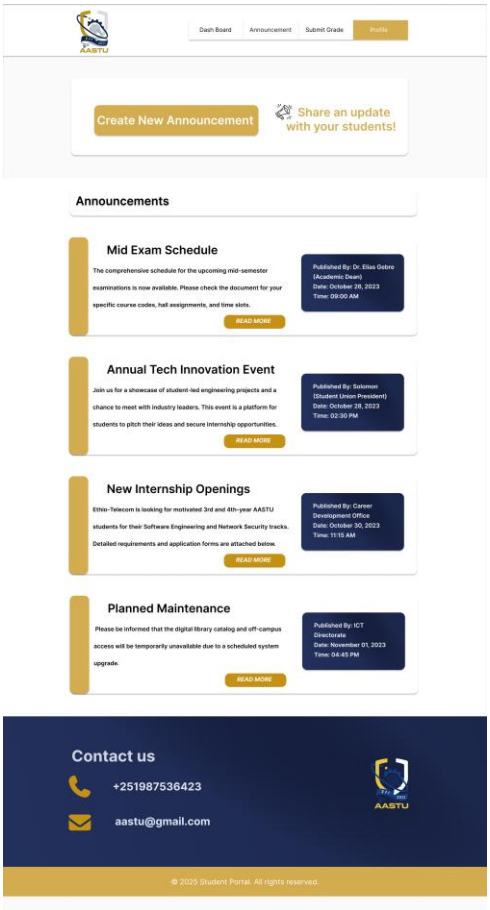
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Create New Announcement
Share an update with your students!
Announcements
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The comprehensive schedule for the upcoming mid-semester examinations is now available. Please check the document for your specific course codes, hall assignments, and time slots.
READ MORE
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Date: October 28, 2023
Time: 09:00 AM
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Join us for a showcase of student-led engineering projects and a chance to meet with industry leaders. This event is a platform for students to pitch their ideas and secure internship opportunities.
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Ethio-Telecom is looking for motivated 3rd and 4th-year AASTU students for their Software Engineering and Network Security tracks. Detailed requirements and application forms are attached below.
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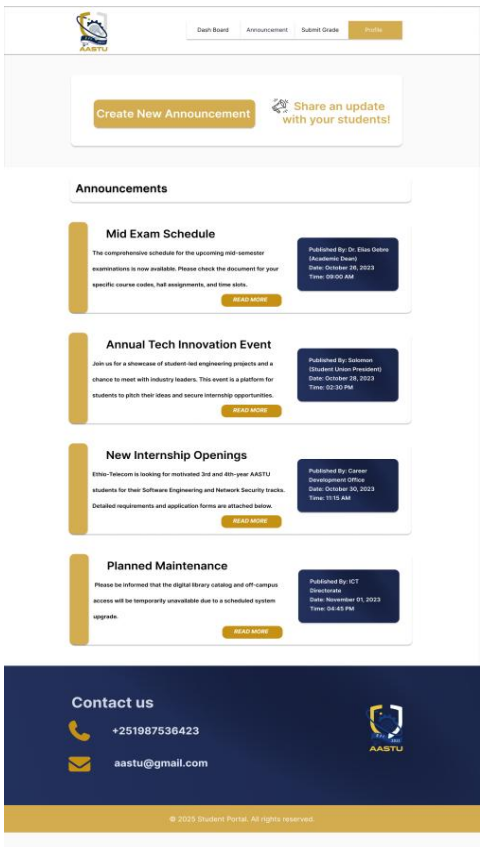
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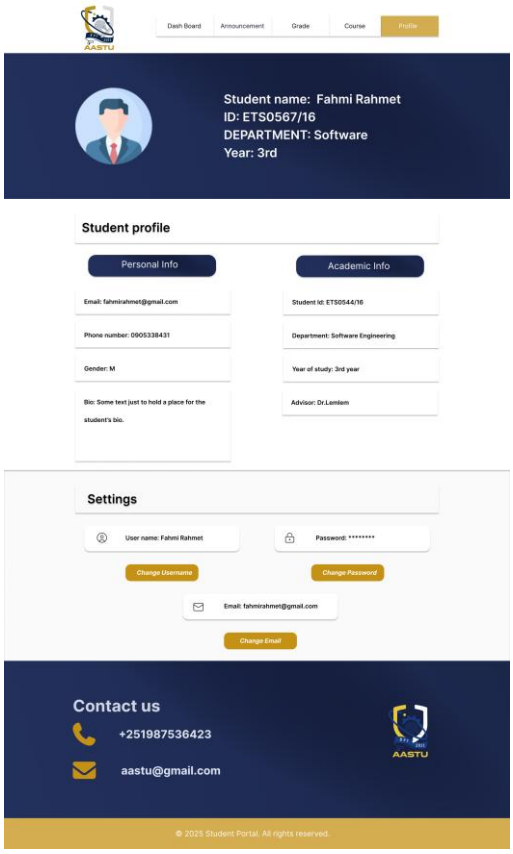
Dash Board
Announcement
Grade
Course
Profile
Student name: Fahmi Rahmet
ID: ETS0567/16
DEPARTMENT: Software
Year: 3rd
Student profile
Personal Info
Academic Info
Email: fahmirahmet@gmail.com
Phone number: 0905338431
Gender: M
Bio: Some text just to hold a place for the student's bio.
Student Id: ETS0544/16
Department: Software Engineering
Year of study: 3rd year
Advisor: Dr.Lemlem
Settings
User name: Fahmi Rahmet
Password: ********
Change Username
Change Password
Email: fahmirahmet@gmail.com
Change Email
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Refference

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