University of Education, Attock Campus

Final Year Proposal

STUDENT INFORMATION			
Name:	Faizan Abbas	Bsf ID:	Bsf2101770
Name:	Gulina	Bsf ID:	Bsf2101460
Department:	Computer Science	Batch:	2021-2025
PROJECT INFORMATION			
Project Name:	**Learning Management System (LMS)**		
Project Area:	Educational Technology	End Users:	Students, Teachers
Project Type:	Website , Mobile App	Duration:	7th and 8th Semester
SUPERVISOR INFORMATION			
Supervisor:	Muhammad Asif		
Signature:			

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1. Introduction

The Learning Management System (LMS) is designed to streamline academic activities within the university. This system will allow students to access their academic records, view results of finals, mids, quizes, assignments and also able to upload assignments online easily, while teachers can manage courses, upload results, mark attendance and interact with students. The LMS will also integrate online fee payment systems, ensuring students can pay their fees securely and easily regardless of submitting fee manually by waiting in banks.

2. Objective

The aim of the Learning Management System (LMS) is to enables students and teachers to manage academic activities such as grades of finals, mids, assignments, attendance, online fee payments, course materials, and canteen services in an efficient and user-friendly manner.

3. Problem Description

The current system for managing student information, attendance, and payments is largely manual and time-consuming. Students have to visit the banks for fee submission process, only able to check final semester result not the assignments and quizzes, which can lead to delays and inefficiencies. Moreover, keeping track of attendance manually makes it difficult for teachers to monitor students' performance effectively.

The proposed LMS will streamline the following:

- Student performance: Updates the grades, assignments, and attendance records.

- Attendance alerts: Automatic email reminders for students with less than 70% attendance.
- Online fee payment: An Easy online portal for students to pay fees through popular platforms like Easypaisa, bank apps, etc.
- Canteen service integration: Teachers and students can order food from the campus canteen online.

4. Methodology

Frontend and backend technologies will be used for creating this project. React Js will be used on frontend to make the user interface dynamic and interactive whereas Node Js and MongoDB will be used for server side logic to handle backend and data storage.

Key methodologies:

- User Authentication: JWT (JSON Web Tokens) will be used for secure user authentication for teachers and students.
- Email Notifications: Nodemailer or similar email-sending services will be integrated to automatically send attendance reminders to students with low attendance.
- Online Payment Integration: APIs from payment gateways like Easypaisa will be used to process fee payments directly from the LMS.
- Responsive Design: React Native will be used to ensure that the system works efficiently on mobile devices.

5. Feasibility Study

Risks Involved:

1. Data Security: Handling sensitive information such as student grades, attendance, and payment details. Security measures like encryption and secure communication will be employed to mitigate this risk.
2. Integration Challenges: Integrating multiple external APIs (e.g., Easypaisa) may present technical challenges, but with thorough testing and documentation, these issues can be addressed.
3. Time Constraints: Developing a fully functioning system with multiple features might take considerable time. Prioritizing core features will ensure we meet deadlines.

Resource Requirements:

- Hardware: Computers for development and testing.
- Software: MongoDB, Node.js, React.js, Nodemailer, and React Native. Access to payment APIs and email services.
- Human Resources: A team of developers (Faizan Abbas & Gulina), and a supervisor for project guidance.

6. Solution Application Areas

The LMS can be applied in several domains within the education sector:

- Universities and Colleges: To manage student information, results, attendance, and course content.

- Corporate Training Programs: Companies offering internal training can use an LMS to manage employee courses and track performance.
- Schools: To streamline daily administrative tasks and improve communication between students, parents, and teachers.

7. Functional Requirements

- **Login Pages:** Separate login pages for teachers , students and admin.
- **Course Management:** Teachers can upload courses content, able to delete it as well also can mark attendance online.
- **Result Upload:** Teachers can upload student results, assignments marks, attendance percentage.
- **Fee Payment System:** Students can pay fees online, and transaction records are kept in the system for both students and admin as well.
- **User Profile Management:** Both students and teachers can update their profiles.
- **Emailing Service:** If any student has short attendance issue email will be sent automatically to his/her registered mail for a reminder.
- **Canteen Services:** Students and teachers can also make order online by LMS app.
- **News Page:** Latest News regarding admissions, holidays, sports will be updated here.

Student

Teacher

Result

Fee Submit

Upload Assignment

Result

Course

Attendance

Admin

Add New Student or Teacher

Allocate Courses

8. Non-functional Requirements

- **Security:** Secure user authentication and data encryption.
- **Scalability:** Ability to scale for future departments and additional users.
- **Performance:** The system should have fast load times and handle high traffic.

9. Tools/Technology

The following tools and technologies will be used in the project:

- **Node.js**: Backend development and server-side logic.
- **React.js**: Front-end user interface development.
- **MongoDB**: NoSQL database for storing data such as student details, attendance, and results.
- **HTML, CSS**: For basic webpage structuring and styling.
- **Nodemailer**: For sending automatic email notifications.
- **React Native**: For making the system accessible via mobile apps.
- **Easypaisa API**: For integrating online fee payment

10. Gantt Chart

Task	Start Date	End Date	Duration
Project Planning	01/10/2024	15/10/2024	2 weeks
Requirements Analysis	16/10/2024	05/11/2024	3 weeks
UI/UX Design	06/11/2024	30/11/2024	3 weeks
Backend and Database Setup	01/12/2024	15/12/2024	2 weeks
Attendance and Marks Submission Module Development	16/12/2024	14/01/2025	4 weeks
Student Portal & Online Fee Submission Feature	15/01/2025	15/02/2025	4 weeks
Emailing System	16/02/2025	23/02/2025	1 week
Payment Gateway Integration	24/02/2025	15/03/2025	3 weeks
Canteen Service	16/03/2025	23/03/2025	1 weeks
Testing & Debugging	23/03/2025	30/03/2025	1 weeks
Final Deployment	30/03/2025	5/04/2025	1 weeks

11. Conclusion

The main focus of this project is to make the University system easy and modernize by adding features like online attendance, grade management, online fees payment, online canteen services. This will help both teachers and students by improving efficiency, accessibility, and communication. The project leverages modern web development frameworks and tools to create a scalable, user-friendly solution tailored for the University of Education.