Department of Computer Science & Engineering

Mini Project Synopsis

Software Engineering

UE22CS341A

Project Title: University Assignment Portal

Team Details:

Member 1:

Name: Arjun N R

SRN: PES2UG22CS910

Member 2:

Name: Mohammed Hassan

SRN: PES2UG22CS317

Date of Submission: 27-08-2024

Corse Instructor:

Prof. Rohith Vaidya K

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Introduction

The digital transformation of educational institutions is a necessity in today's academic environment. This project aims to develop a University Assignment Portal that facilitates assignment submissions and grading between students and faculty. The portal will streamline assignment management by providing a centralized platform for students to submit assignments, track progress, and receive feedback, while allowing professors to upload assignments, monitor submissions, and evaluate student performance efficiently.

The assignment portal will be accessible to different user roles, including students, professors, and administrators, each with different access rights and functionalities. The system will automate grading processes, ensure security and integrity of submissions, and provide a user-friendly interface for all stakeholders.

Problem Statement

Universities often rely on a variety of platforms and communication channels (email, learning management systems, physical notice boards) to disseminate assignment information. This can lead to confusion and difficulty for students in keeping track of all their assignments.

Without a central repository for assignment information, students miss important deadlines or instructions, resulting in incomplete or late submissions.

Many universities still rely on manual processes for assignment submission (physical copies or email attachments) and grading, which can be time-consuming and prone to errors. Manual grading processes can result in delays in providing feedback to students

Traditional assignment management systems may offer limited opportunities for interaction and collaboration between students and professors.

Objectives

Assignment Management: Professors can upload assignments with deadlines, instructions, and attached documents. Each assignment is linked to the relevant course and made available to students.

Submission Portal: Students can submit their completed assignments directly through the portal. They can upload files and receive a confirmation of successful submission.

Grading and Feedback: Professors can review and grade submissions within the portal. They can also leave detailed feedback that is visible to students.

Database Integration: All assignment details, submissions, grades, and feedback will be stored in a secure, scalable relational database.

User Roles and Access Control: The system will implement role-based access control, ensuring that students, professors, and administrators have distinct permissions. For instance, students can only view and submit their assignments, while professors can manage assignments and grade submissions.

Report Generation: The system will generate reports summarizing the status of assignments, grades, and feedback for both students and professors.

Methodology

1. Requirements Gathering: Engage with professors, students, and administrators to collect functional and non-functional requirements for the system.

2. System Design:

- Frontend Design: Develop a user-friendly interface using HTML, CSS, and JavaScript, ensuring the design meets accessibility standards.
- Backend Design: Implement the backend using a web framework like Flask. Design the application logic to handle assignment postings, submissions, and grading.
- Database Design: Develop a relational database schema using MySQL, defining tables for user data, assignments, submissions, grades, and notifications.

3. Implementation:

- Develop the frontend and backend systems.
- Integrate the frontend with the backend using REST APIs.
- Implement the database schema, ensuring proper relations between tables (e.g., users, assignments, submissions).
- Deploy the system on a secure server with user authentication and access control mechanisms in place.

4. Testing: Conduct unit tests, integration tests, and user acceptance testing to ensure that the system meets the functional and non-functional requirements.

5. Deployment: Deploy the system on a server or cloud platform with proper configurations for scalability and security.

Expected Outcomes

- A fully functional web-based assignment portal that facilitates assignment submissions, grading, and feedback between students and professors.
- Improved assignment tracking and management for both students and professors, leading to greater efficiency in handling deadlines and providing feedback.
- Secure storage of all submissions, grades, and related data in a database.
- Clear role-based access control to ensure data security and appropriate access for different user types.
- Automated notifications to keep students and professors informed about assignment-related activities.

Tools and Technologies

- Frontend: HTML, CSS, JavaScript, Bootstrap
- Backend: Python (Django/Flask)
- Database: MySQL/PostgreSQL
- Version Control: Git/GitHub
- Deployment: Nginx
- Security: Data encryption, Role-based authentication, Access control

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Conclusion

The University Assignment Portal will transform how assignments are managed in a university setting, offering a more organized, secure, and efficient system for both students and professors. By automating the assignment lifecycle from creation to grading, the portal will eliminate the inefficiencies of traditional methods, provide timely feedback to students, and ensure the integrity of the grading process.
