**CEP REPORT**

School Of Engineering And Technology

**PROJECT NAME: ASSIGNMENT MONITORIZATION SYSTEM**

Batch -B2

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**ABSTRACT**

The Assignment Portal is a dynamic web application designed to streamline the process of assignment distribution and notification between teachers and students. Built using Django (a high-level Python web framework) and MySQL, this portal provides a platform where teachers can create and manage assignments, while students can view and access those assignments in real-time.

The project is structured into two major Django applications within one main project: the 'account' app, responsible for handling user registration, login, and authentication for both students and teachers; and the 'assignment' app, which manages assignment creation, storage, and communication. A key feature of this portal is the email notification system that automatically informs students whenever a teacher posts a new assignment.

The objective of this project is to enhance academic efficiency by replacing manual or less-organized digital methods with a user-friendly, automated solution. The system has been tested for reliability, performance, and usability. It demonstrates the effective use of open-source technologies to solve real-world educational challenges. This project lays the foundation for future enhancements such as file submission, grading, and feedback systems.

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**INTRODUCTION**

In modern educational institutions, managing assignments effectively and ensuring timely communication between teachers and students is a critical aspect of the learning process. Traditionally, this has been handled using manual methods such as printed documents, classroom announcements, or basic messaging apps. These methods are not only time-consuming but also prone to miscommunication, especially when managing large numbers of students.

With the rise of digital platforms, there has been a shift toward automated learning management systems (LMS). However, many of these systems are either too complex or too resource-heavy for smaller institutions or individual class use. This gap highlights the need for a simpler, more accessible tool that focuses specifically on assignment creation and communication.

The "Assignment Portal" project is designed to address this need by providing a lightweight, easy-to-use, and efficient web-based platform. The portal allows teachers to log in and post assignments and ensures that students are notified instantly via email. The platform ensures that students receive updates in real-time and can access assignments without any confusion.

The system is divided into two modules: a login module (account app) for user authentication and a core functionality module (assignment app) for creating and viewing assignments. It uses Django as the web development framework due to its robust security and scalability features, and MySQL for database management, ensuring reliable data storage and quick access.

This project promotes enhanced teacher-student communication, reduces administrative workload, and introduces basic automation in academic environments. It also forms a solid base for future educational tools by being extensible and adaptable to various academic needs.

Objective: To build a web-based assignment portal with separate logins for teachers and students and automated email notifications.

Scope: The portal covers assignment creation, user registration and login, and email notification systems. It focuses on educational institutions and can be extended to support additional academic features.

**LITERATURE REVIEW**

Over the years, educational technology has evolved significantly with the development of Learning Management Systems (LMS) like Google Classroom, Moodle, Edmodo, and Blackboard. These platforms aim to digitize the process of education by allowing teachers to create assignments, conduct assessments, and communicate with students. However, despite their effectiveness, many institutions face difficulties in adopting these systems due to their complexity, cost, or infrastructure requirements.

In a study on Moodle usage, it was found that while it is a powerful platform, it demands proper training for teachers and students to utilize its features fully. Similarly, Google Classroom is widely used, but its dependence on Google accounts and internet speed can be problematic in resource-constrained environments.

Research shows that there is a need for minimal, purpose-built platforms that serve specific educational needs without unnecessary features. Moreover, while these systems provide assignment management, they often lack real-time notification features, or require integration with third-party tools for emails and alerts.

This project, "Assignment Portal," addresses these gaps by providing a simple yet functional web-based system that allows assignment management with automatic email notifications using Django's built-in SMTP backend. The design of this portal ensures ease of use, scalability, and cost-effectiveness for smaller educational institutions or individual educators.

**METHODOLOGY**

The development of this project followed the Agile software development approach. It involved iterative development, regular testing, and continuous feedback to ensure that the final product met user expectations. The key phases included requirements analysis, system design, development, testing, and deployment.

Technologies Used:

* Backend: Django (Python Web Framework) – for managing the core application logic and database interaction.
* Frontend: HTML, CSS, Bootstrap – for creating a clean and responsive user interface.
* Database: MySQL – for structured data storage and management.
* Email Notifications: Django SMTP Email Backend – for sending real-time assignment alerts to students.

Hardware Requirements:

* A computer or laptop with minimum 4GB RAM and dual-core processor.
* Reliable internet connection for server deployment and email delivery.

Software Requirements:

* Python 3.x installed
* Django Framework (latest stable version)
* MySQL Community Server
* Visual Studio Code (VS Code) as the code editor
* Web browser for accessing the portal

Project Workflow:

1. Teachers and students register and log in through the 'account' app.
2. Teachers access their dashboard to create new assignments.
3. Assignments are saved in the MySQL database via Django ORM.
4. When an assignment is created, a Django signal triggers an automatic email to all registered students.
5. Students log in and view available assignments on their dashboard.

**DESIGN & IMPLEMENTATION**

System Architecture: The project consists of a single Django project (assignment\_portal) containing two apps:

* account: Manages user registration, authentication, and authorization.
* assignment: Handles assignment creation, viewing, and email notifications.

Architecture Overview:

* Users interact with the frontend built using HTML and Bootstrap.
* The Django backend processes user input, handles business logic, and communicates with the MySQL database.
* The SMTP server is configured to send email alerts upon assignment creation.

Flowchart Description:

1. User Authentication:
   * Users sign up or log in using their role (student/teacher).
2. Dashboard View:
   * Based on the role, the user is directed to the appropriate dashboard.
3. Assignment Creation (Teacher only):
   * Teacher fills out a form to create an assignment.
   * Upon saving, an email is sent to all student users.
4. Assignment Viewing (Student):
   * Students can view all assignments in their dashboard.

Implementation Details:

* Used Django's User model and auth system for secure login/logout.
* Designed forms using Django's form classes for data validation.
* Created Assignment model with fields like title, description, deadline, and created\_by.
* Configured SMTP settings in settings.py using Gmail SMTP for sending emails.
* Used Django signals (post\_save) to trigger email alerts automatically after a teacher creates an assignment.

Testing Methods and Results:

* Unit Testing: Individual modules like login, assignment creation, and email function were tested.
* Integration Testing: Verified the interaction between assignment creation and email delivery.
* User Testing: Multiple test accounts were created to simulate real teacher-student workflows.

The system was tested in a local environment using the Django development server. All key functions including login, assignment creation, and email delivery were successfully executed without errors.

**RESULT AND DISCUSSION**

The Assignment Portal was successfully developed and tested in a controlled local environment. All major functionalities, including user registration, login, assignment creation, and email notifications, worked as intended.

Observations:

* The system provided a smooth login experience for both students and teachers.
* Teachers were able to create assignments easily using the intuitive dashboard.
* Email notifications were sent instantly after assignment creation, ensuring timely communication.
* Students could view the list of available assignments immediately upon login.

Performance Evaluation:

* The system exhibited low response time for key actions such as login, assignment creation, and data fetching.
* The use of Django ORM with MySQL ensured efficient data storage and retrieval.
* The email delivery was reliable using Django’s SMTP integration with Gmail.

Discussion: Compared to existing platforms like Google Classroom, this system offers a simpler and lightweight alternative tailored for basic assignment tracking and alerts. Unlike larger LMS platforms, it requires minimal setup and is suitable for institutions or educators looking for focused functionality without additional complexity.

This project also emphasizes automation using Django signals, reducing the manual effort required from teachers to inform students about new assignments. User feedback during testing was positive, particularly regarding ease of use and the responsiveness of the UI.

**CONCLUSION & FUTURE SCOPE**

Conclusion: The "Assignment Portal" project has successfully met its objectives by providing a reliable, user-friendly platform for managing and distributing assignments between teachers and students. The use of Django and MySQL allowed for efficient backend processing and secure data storage. Email notifications ensured timely updates to students, addressing a common communication gap in many institutions.

The project’s modular structure using two apps – account and assignment – ensured separation of concerns and better maintainability. The testing process confirmed the functionality and robustness of the system in a simulated environment.

Limitations:

* Currently, the email system relies on a hard-coded SMTP server (Gmail), which may limit scalability.
* There is no support for file uploads or submission tracking.
* The user interface is basic and may require enhancements for real-world deployment.

Future Scope:

* Integration of assignment submission and grading features.
* File upload support for students to submit work digitally.
* Admin panel for managing users, viewing analytics, and tracking performance.
* Deployment on a cloud platform with real-time notifications via SMS or mobile apps.
* Implementation of role-based access control and enhanced security.

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