BCS3263

SOFTWARE QUALITY ASSURANCE SEMESTER I 2025/2026

PROJECT PROPOSAL

TEACHING & LEARNING-THEMED PLATFORM

Digital Teaching & Learning Portal - ClassConnect

SECTION 01B

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1. Introduction

a. Current issues

In this current digital education environment, multiple teaching and learning platforms have issues in providing an effective, accessible, and well-organized user experience. Despite increasing adoption of online learning technology, several basic issues remain unresolved, limiting the overall efficiency of both educators and students.

1. Limited Accessibility and Inefficient User Management

Many existing e-learning platforms face difficulties in managing diverse user roles such as teachers, students, and administrators. Issues like duplicate accounts, forgotten credentials, and unclear user permissions often reduce system reliability and accessibility. The lack of a systematic user management structure may result in inconsistent data, lower security, and lost user confidence.

2. Poor Organization of Learning Content

Educators frequently encounter challenges in uploading, organizing, and updating digital lesson materials. This can result in disorganized or outdated content, limiting students' access to relevant and engaging learning resources. As a result, this issue affects engagement and the overall quality of the learning experience.

3. Unsystematic Assignment Handling

The process of distributing, submitting, and grading assignments remains time-consuming and inefficient in many online systems. Students often lack clarity on their submission status and feedback, which negatively impacts performance and engagement.

4. Insufficient Communication and Announcement Tools

A recurring challenge in many educational platforms is the absence of a cohesive and effective system for managing announcements and communication. Important updates such as class schedule changes, event notifications, or official school announcements are often shared through multiple disconnected channels, leading to inconsistent information flow. This fragmented communication structure causes students and teachers to miss critical updates and creates unnecessary confusion within the learning environment. Without a centralized communication

hub, both educators and learners face difficulties staying synchronized, ultimately hindering engagement, coordination, and overall academic performance.

b. Objective of study

1. To Enhance User Accessibility and Account Management Efficiency

The goal is to improve how users' access and manage their accounts within the learning platform. Many current e-learning systems face challenges such as complicated registration procedures, duplicate accounts, and unclear role assignments, which can hinder accessibility and disrupt the user experience. Through the implementation of a structured user management module, this project aims to provide a secure and user-friendly system for registration, login, and role-based access control. The system will simplify user onboarding, maintain account accuracy, and ensure that each user whether teacher, student, or administrator can efficiently access the resources relevant to their role.

2. To Improve Lesson Organization and Digital Content Management

The goal is to make the process of managing and distributing learning materials more efficient and organized. In many online platforms, teachers struggle to upload, update, and manage content effectively, leading to outdated or scattered learning materials.

The lesson management module in ClassConnect is designed to help teachers easily create, edit, and organize lessons in one centralized location. This will ensure that students have access to updated, relevant, and well-structured materials, thereby supporting a more effective and engaging digital learning environment.

3. To Simplify Assignment Handling and Feedback Process

The goal is to streamline how assignments are created, submitted, and evaluated. Traditional manual methods often cause confusion, delays, and difficulties in tracking submissions and grades. By introducing an automated assignment management module, the project aims to make assignment handling more transparent and efficient. Teachers can easily create and grade assignments, while students can monitor their submission status and receive timely feedback enhancing accountability and learning outcomes.

4. **To Improve Communication and Information Dissemination**

The goal is to create a reliable and centralized platform that streamlines communication and announcement management within the digital learning environment. Through an integrated announcement system, administrators and teachers can conveniently share class updates, schedule changes, and school-wide announcements, ensuring that all users receive timely and consistent information. This initiative aims to bridge communication gaps, enhance user awareness of school activities, and strengthen coordination between teachers, students, and administrators for a more connected and efficient learning ecosystem.

c. Project to be develop

ClassConnect seeks to create a centralized e learning platform that will help in overcoming the major problems that hinder effective online learning. The platform will be made to go through with smooth user experiences by teachers, students and administrators and it will facilitate effective management of learning materials, assignments and communications.

The system will have a powerful User Management Module that will provide an easy user registration, accessing through roles, and effective management of accounts. This will remove problems like duplication of accounts and forgotten logins hence giving the users a secure and easy to use interface.

The Lesson Management Module will also enable the educators to simply upload and organize as well as update the learning materials so that the students can have access to the relevant and updated content all the time. This will enhance the discoverability of the content, and promote even greater degrees of student engagement.

The creation, submission, and grading of assignments will be simplified by an easy to use Assignment Management Module. Students will be in a position to monitor their submission status, and get prompt feedback, and teachers can manage grading in a more efficient way. This system would help to improve accountability and learning output among students.

Finally, the platform will have Communication and Announcement Tools included so that teachers and administrators can communicate important information, schedule changes, and school announcements through a central point. This will

eradicate the divided communication system where everyone is made up to date and connected.

The ClassConnect will offer a simplified toolset to teachers to develop, administrate, and distribute learning content and provide students with a more interactive, structured learning process. This project will also aim at improving the general digital learning experience, which will be more accessible, efficient, and coordinated by all users.

2. Problem/motivation

Most e-learning platforms in the modern digital education environment do not offer an efficient, neat, and user friendly experience. Although the use of online learning technologies has been swift, there are still several underlying problems that impact the accessibility, usability, and performance of the platform.

On the one hand, most platforms have a problem with the lack of an effective user management system that results in duplicated accounts, lost credentials, and role ambiguity. These problems cause misunderstanding, differences in data, and distrust in the platform and impediment of the user experience.

Also, educators usually encounter difficulties with structuring and updating the learning material, which results in old and chaotic materials. This interferes with the access to relevant resources of students affecting the level of interaction and quality of learning.

There is also cumbersomeness of assignment management. The mode of distributing, submission, and grading assignments is time-consuming and the students tend to have difficulties in following up the statuses of submissions and receiving prompt feedback, which influences performance.

Lastly, there is no centralized communication system that means that important updates and announcements are overlooked, which causes communication failures between educators, students, and administrators, which further disrupts the learning process.

The proposed project, ClassConnect, will help solve these problems, making user management, content management, handling assignments, and communication

efficient and smooth to create a hassle-free and effective e-learning process that will result in improved educational performance of both teachers and students.

3. Background of Project

Due to the usage of numerous, disconnected platforms, instructors and students frequently struggle to manage teaching and learning activities in the present digital learning environment. For managing courses, assignments, and communication, many schools continue to rely on distinct platforms, which leads to inefficiencies, data duplication, and challenges with teamwork. While students find it challenging to access classes, keep track of assignments, and stay informed of announcements, teachers struggle to efficiently organize, update, and distribute learning materials. Furthermore, poor coordination and decreased user involvement are frequently the results of a lack of centralized communication tools

To overcome these challenges, a web-based teaching and learning management system called ClassConnect is proposed. The system seeks to consolidate all academic and communication-related tasks into a single, cohesive platform that facilitates effective content management, smooth teamwork, and organized communication. In order to facilitate data administration and preserve the accuracy and consistency of information throughout the platform, it offers CRUD (Create, Read, Update, Delete) features. To enable digital learning settings, ClassConnect's design adheres to Software Quality Assurance (SQA) principles, guaranteeing usability, dependability, and scalability.

The integration of several crucial modules that support different academic processes is part of the development of the ClassConnect system. The system includes the first module: **User Management Module**, which handles manage user. Second Module: **Lesson Management Module**, which enable teachers to upload and organize lesson materials. The third module: **Assignment Management Module**, which streamlines the submission and grading procedures. The last module: **Announcement and Communication Module**, which improves communication by delivering timely updates and notifications.

4. Development Methodology

a. Method of development

Rapid Application Development (RAD)
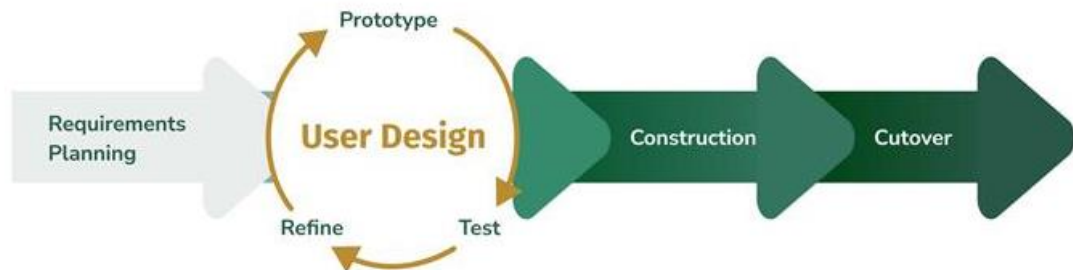
Rapid Application Development (RAD) method has chosen by our group to develop ClassConnect: Digital Teaching and Learning Portal. RAD is an Agile-based software development methodology which focuses on rapid prototyping, continuous user feedback, and iterative refinement in order to develop high-quality, software that is easy to use.

This method is particularly suitable for the ClassConnect project since it allows for faster development of functional modules, encourages active participation from stakeholders, and allows for changes during the development process. The RAD method ensures that the final product effectively satisfies the needs of teachers, students, and administrators by encouraging rapid iteration and user involvement.

Phase	Description
Requirements Planning Phase	This phase focuses on understanding the project objectives, scope, and user requirements. The development team collaborates with stakeholders to gather and analyze information related to user roles (Teacher, Student, Admin), lesson materials, assignments, and announcements. A clear understanding of functional and non-functional requirements is established before proceeding.
User Design Phase	The system interface and workflows were developed collaboratively by developers and end users. Each module, including User Management, Lesson Management, Assignment Management, and Announcement Module, is prototypes and mock up. User is continuous feedback helps to

	develop functionality and interface design early in the process.
Construction Phase	In this phase, the system is developed using approved prototypes. The front-end interfaces are designed by the development team using HTML, CSS, and JavaScript, while each module is CRUD (Create, Read, Update, Delete) functionality is implemented using PHP and MySQL. Iterative testing, debugging, and feedback from users are used to ensure that the system satisfies performance and usability requirements.
Cutover Phase	The final phase involves the integration, testing, and deployment of the entire system. User training, documentation, and final evaluations are executed to ensure stability and readiness. The platform is then prepared for both presentation and actual implementation.

b. Module for each member

i. Module 1: User Management Module

Sub-Module	Description
Create Account	Allows both teachers and students to create an account by entering their name, email, and password to access the platform.
Read Profile	Enables both teachers and students to view their profile details, such as name, email, role, and other personal information.
Update Profile	Allows both teachers and students to modify their account details, including email, password, profile picture, and other relevant information.
Delete Account	Enables both teachers and students to delete their account if they no longer wish to use the platform.

Create Account	Allows both teachers and students to create an account by entering their name, email, and password to access the platform.

ii. Module 2: Lesson Management Module [Nor Farisha Natasha Binti Roseman Affendi CB22102]

Sub-Module	Description
View Lesson	Enables teachers and students to access lesson materials. Teachers can view their own lesson, and student can view and download lesson related to the courses they are enrolled.
Create Lesson	Allows teachers to create new lesson include add information about lesson such as title, description, category, and uploading relevant files or resources.
Edit Lesson	Allows teachers to modify their existing lessons, including updating descriptions, replacing outdated files, or changing categories.
Delete Lesson	Enables educators to eliminate unneeded or out of date lessons from their collection. To maintain data integrity and avoid unintentionally losing shared content, ownership limits exist, teachers can only remove their own lessons.
Upload Lesson	Teacher can upload their lesson files such as documents, presentations or multimedia materials.

iii. Module 3: Assignment Management Module [Azmi Wan Nurhaliza CB22004]

Sub-Module	Description
View Assignment	Students can view the list of assignments made by their teachers. Students can view assignment details such as the title, description, due date, and submission status. Teachers may access all of the assignments they have completed and track student submissions.

Create Assignment	Teachers can create and publish new assignments by providing relevant details such as title, instructions, deadlines, and attached files or resources. This ensures that students have clear instructions and deadlines for every assignment.
Submit Assignment	Allows students to upload and submit completed work using the system. Students can attach documents or files, which will be saved in the database and accessible to the respective teacher for grading.
Update Assignment / Grade Submission	Allows teachers to review, grade, and update assignment submissions. Teachers can modify marks or feedback if re-evaluation is required. Students may also re-upload assignments before the deadline if corrections are needed.
Delete Assignment	Allows teachers to remove outdated or unnecessary assignments from the system. This helps maintain an organized workspace and ensures only active assignments remain visible to users.

iv. Module 4: Announcement and Communication Management Module [Nabilah Binti Mohammad Shahidan CB23122]

Sub-Module	Description
Create Announcement	Enables authorized users (teachers and administrators) to compose and post announcements such as class updates, schedule changes, and school-wide notices.
View Announcement	Allows all users to access and read announcements shared by teachers or administrators. Announcements can be filtered by category (Academic, Event, General Notice, Administrative, Reminder), date (Posted Date, Event Date, Expiry Date), or class (All Teachers, All Students).

Update Announcement	Provides the option for teachers and administrators to modify existing announcements such as edit incorrect details, update event time or date.
Delete Announcement	Allows authorized users to remove outdated or irrelevant announcements to maintain a clean and organized platform.
Send Direct Message / Notification	Facilitates instant communication between users such as admin to teacher, teacher to student for urgent or specific matters.
Respond to Announcement	Enables students and teachers to acknowledge receipt of announcements or respond when required such as confirm attendance for events.

5. Expected Outcome

i. Module 1: User Management Module [Al-Qarmwshi Abdullah CB23005]

ClassConnect interface of the login system is aimed at ensuring unproblematic access by three users: Admin, Teacher, and Student. The webpage of the log-in page has a plain and advanced interface with a gradient ground work. The user is asked to provide his/her username and password.
For each user type:

Admin: Admin users will be able to log into the platform using the unique username (e.g., admin) and password and control the platform in general, track user activity, and administrative settings.

Teacher: Teachers are allowed to access courses as well as to upload learning materials and communicate with students using their assigned usernames (e.g., Abdullah@teacher) and passwords.

Student: Students can use their individual username (e.g., salem@student) and either a password or a biometrics identifier to get access to course materials, submit assignments, take quizzes, and engage in a discussion on the forums.

The platform is user friendly because the Register as Student link allows an easy registration of new students. The system has a facility of role-based access; hence, every user has the right set of permissions depending on his or her role.

ClassConnect platform provides different registration processes to students and teachers.

Student Registration: Student Registration page enables new users to open their accounts by giving them the necessary information like Full Name, Username, Email, Phone Number, Address, and Password.

The registration form is straightforward, and hence students find it easy to register and have access to the platform. Their registration will be complete, and

they are allowed to log in and begin using learning materials, assignments, and other features that are specific to them.

The students can use a button marked Register and provide their registration information and it has a link to the user with an existing account to log in.

Teacher Registration: There is no self-registration process among teachers. Rather, the Admin panel helps in the generation of teacher accounts. The registration form has the option of the Admin to enter the details of the teachers in Full Name, Username, Email, Phone Number, Address, and Password.

Once all the required information is entered, the admin may press the button of creating the teacher account by clicking on the Register Teacher button where the teacher will be able to manage courses as well as communication with the students.

This dual registration will be used so that students can easily register themselves and the accounts of teachers can be handled by the system administrator so that the platform will be neat and secure.

The Personal information can be viewed and edited by the students and teachers easily; this is available in the Profile Settings page in ClassConnect. This is a feature that offers an easy interface in the management of key profile details.

Profile: The user, can access information about their account, which includes their username (not changeable), full name, email address, phone number, and address. These are presented in a pleasant user-friendly format.

Change of Profile: Students and teachers can change their profile. Once amendments have been done to such fields as email, phone number, and address, the user just clicks on the "Update Profile" button to save the updates.

In the case of students, the profile will show a success message after updating the profile. It is also possible to have teachers dealing with their profile details using their settings interface. The Profile Settings ensures that the user can manage his/ her personal information with ease without an overly elaborate experience that is also secure.

ClassConnect has the Delete Account feature which can be used by students and teachers. This is a feature that gives users the opportunity to permanently delete their accounts to make sure that all their personal information, assignments, and grades are eliminated in the system.

Account Deletion: In order to delete their account, users are required to verify their identity by typing in their existing password. This measure will make sure that the deletion request is deliberate and authorized.

Confirmation Warning: There is a large warning text that shows the permanence of the action, with a description of the effects: various personal information will be destroyed, the assignment hand-ins will be eliminated and feedback and grades will be lost.

Upon a confirmed password, the user is allowed to continue by clicking on the Yes, Delete My Account button, that will make permanent deletion on their account. Users are given a Cancel option in case they do not want to go ahead with the deletion.

This level of protection will be used to ensure that users are conscious of the consequences of deleting an account, and will be used as a way of protection against accidental or unintended deletions.

ii. Module 2: Lesson Management Module [Nor Farisha Natasha Binti Roseman Affendi CB22102]
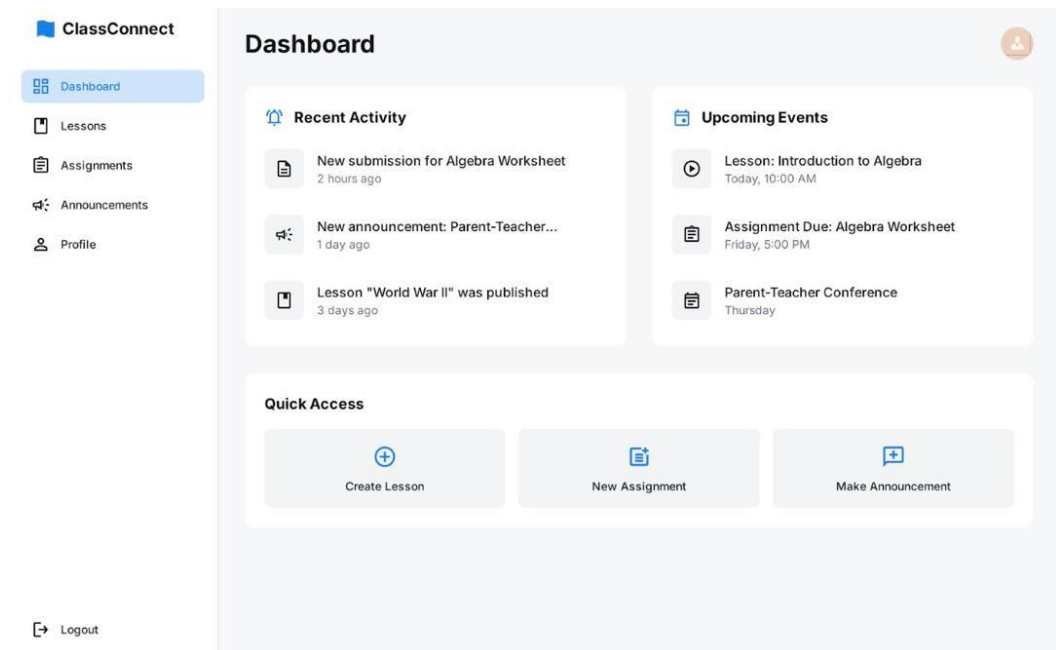
This page displays the teacher dashboard with a clean and structured layout designed for easy navigation. It displays recent activity and upcoming events. Teachers can quickly access essential tools through the Quick Access panel, which includes buttons to create lessons, assignments and announcements.
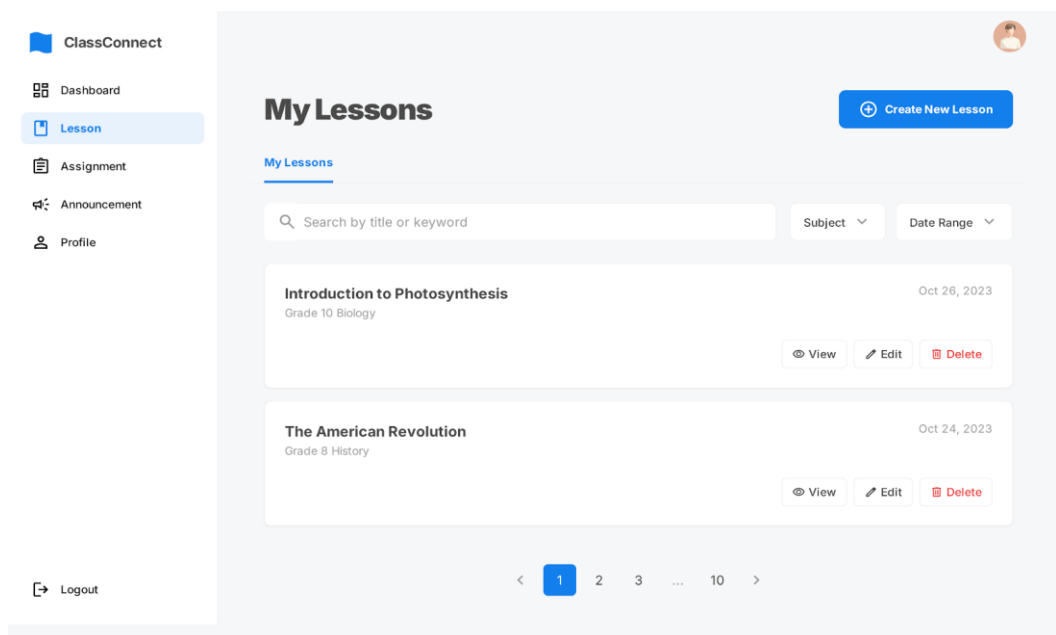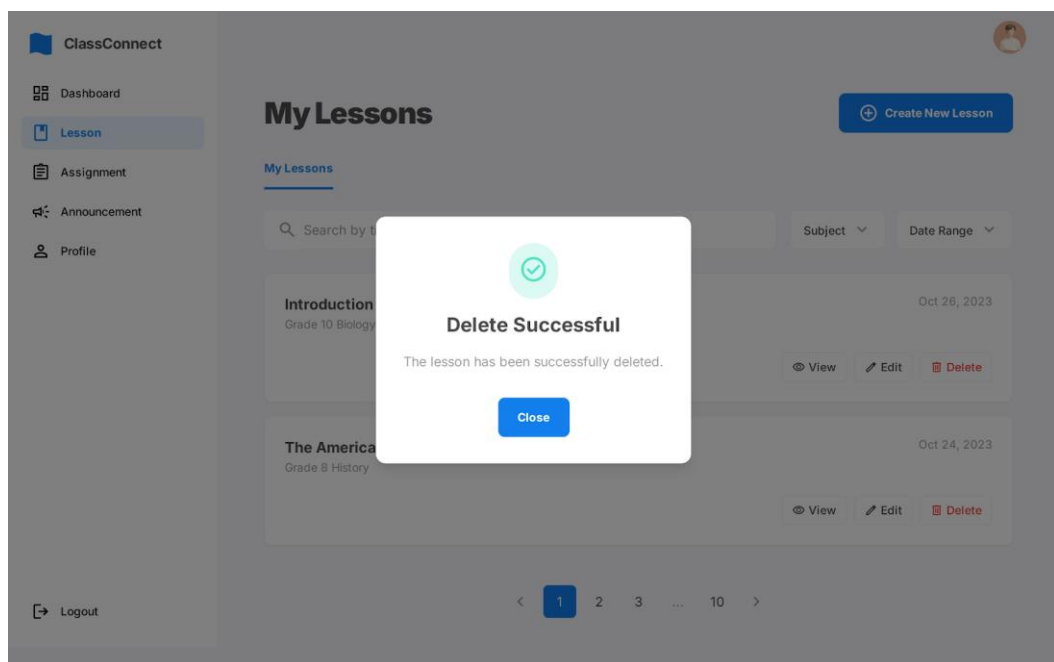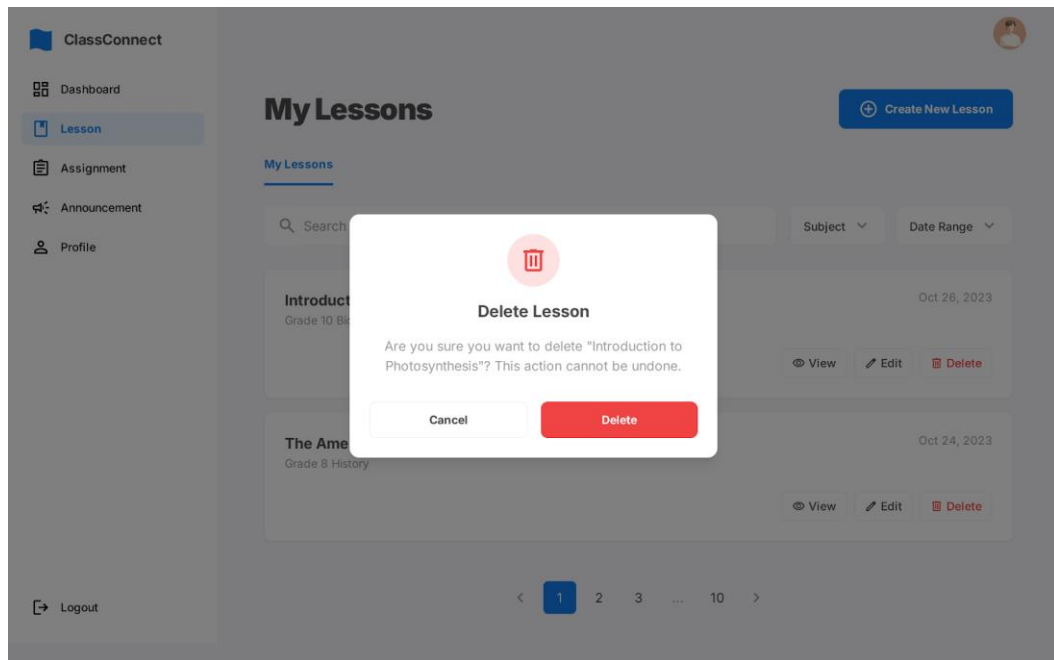
This page displays the teacher lesson management interface for teachers to view, organize and manage their uploaded lesson materials efficiently. At the top, "Create New Lesson" button enables teachers to add new lessons. Teacher can also search their lesson materials by using search bar. Each lesson can view, edit and delete.

Add New Lesson

Lesson Title

Enter the lesson title here

Category

Select a category

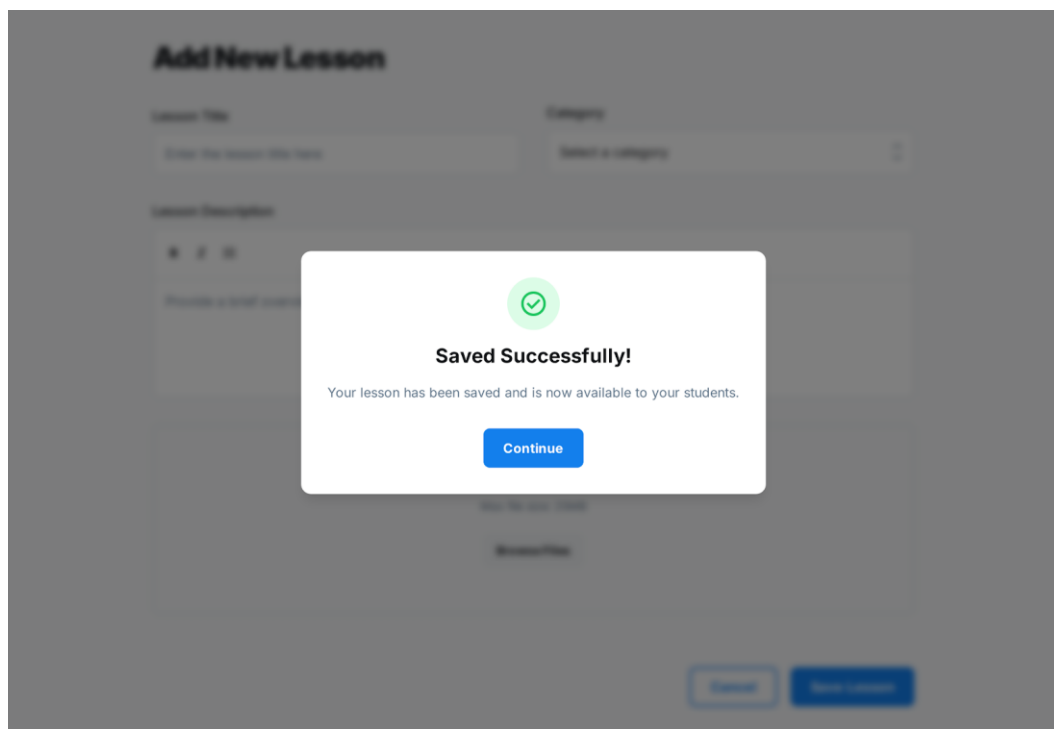Lesson Description

B *I* ≣

Provide a brief overview of the lesson

Attachments

Max file size: 25MB

Browse Files

Cancel   **Save Lesson**

Add New Lesson

⊘

Saved Successfully!

Your lesson has been saved and is now available to your students.

Continue

On this page, educators can create and submit new lesson materials using the Add New Lesson interface. Lesson Title and Category input boxes are included to aid with subject or topic organization. With the use of simple text formatting options for clarity, teachers can give a short summary or overview of the material in the Lesson Description box. Lesson resources like documents, slides, or media files can be uploaded to the Attachments area, with a 25MB maximum size limit.

The Save Lesson and Cancel buttons at the bottom allow users to either confirm the upload or end the process.

The Edit Lesson interface, which allows teachers to alter previous lesson data and materials. To guarantee correctness and applicability, the lesson title, description, and category may be changed in the Lesson Information section. The current uploaded file can be viewed, downloaded, or replaced by dragging and dropping a new one from the File Management panel on the right. Teachers may update lesson content more quickly and effectively without having to start from scratch thanks to this well-organized layout. While the Cancel option enables users

to remove adjustments and go back to the previous page, the Save Changes button verifies updates.
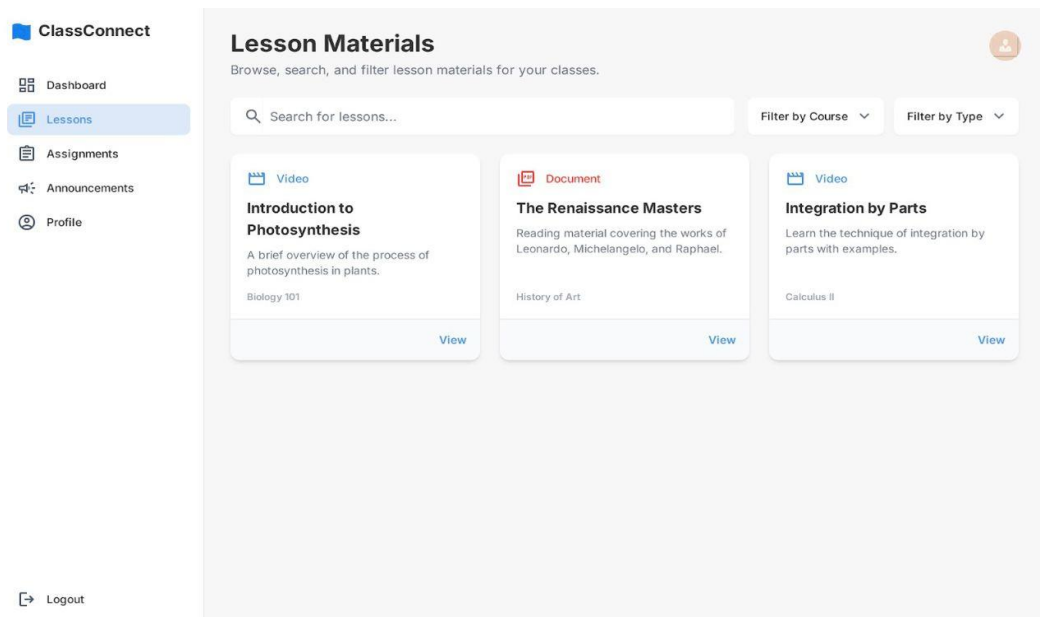
The Student Lesson Materials interface is displayed on this page, allowing students to peruse and access educational materials that have been supplied by their teachers. In addition to filter options by course and content type for convenient navigation, the layout includes a search bar or rapidly locating particular lessons. Students can open and examine the chosen content by clicking "View". Students can easily find and study course-related lessons thanks to the neat and well-organized design, which guarantees a seamless learning experience.

**iii.** Module 3: Assignment Management Module [Azmi Wan Nurhaliza CB22004]

All these UI designs are show the expected outcome of the Assignment module.

The teacher page provides a clean and organized interface for managing assignments. The sidebar on the left includes navigation links such as Dashboard, Lesson, Assignment, Announcement, and Profile, with the current page highlighted. At the bottom, there is a logout option. The main section displays the page title "Assignment" with a short description, followed by a search bar, filter dropdown, and a "Create New Assignment" button that allows teachers to add new tasks easily.

Below the header, all assignments are shown in neatly arranged cards. Each card displays the assignment title, description, due date, and the creator's name, along with action buttons such as View, Edit, Submissions, and Delete. These buttons let teachers quickly view assignment details, update information, check student submissions, or remove assignments. When creating or editing, a pop-up modal appears where teachers can fill in the title, description, due date, and upload files.

The page also includes a modal to view full assignment details and another to simulate student submission, showing how students upload their work. Overall, the teacher interface is designed to be simple, clear, and efficient, helping teachers manage assignments smoothly within a single page.
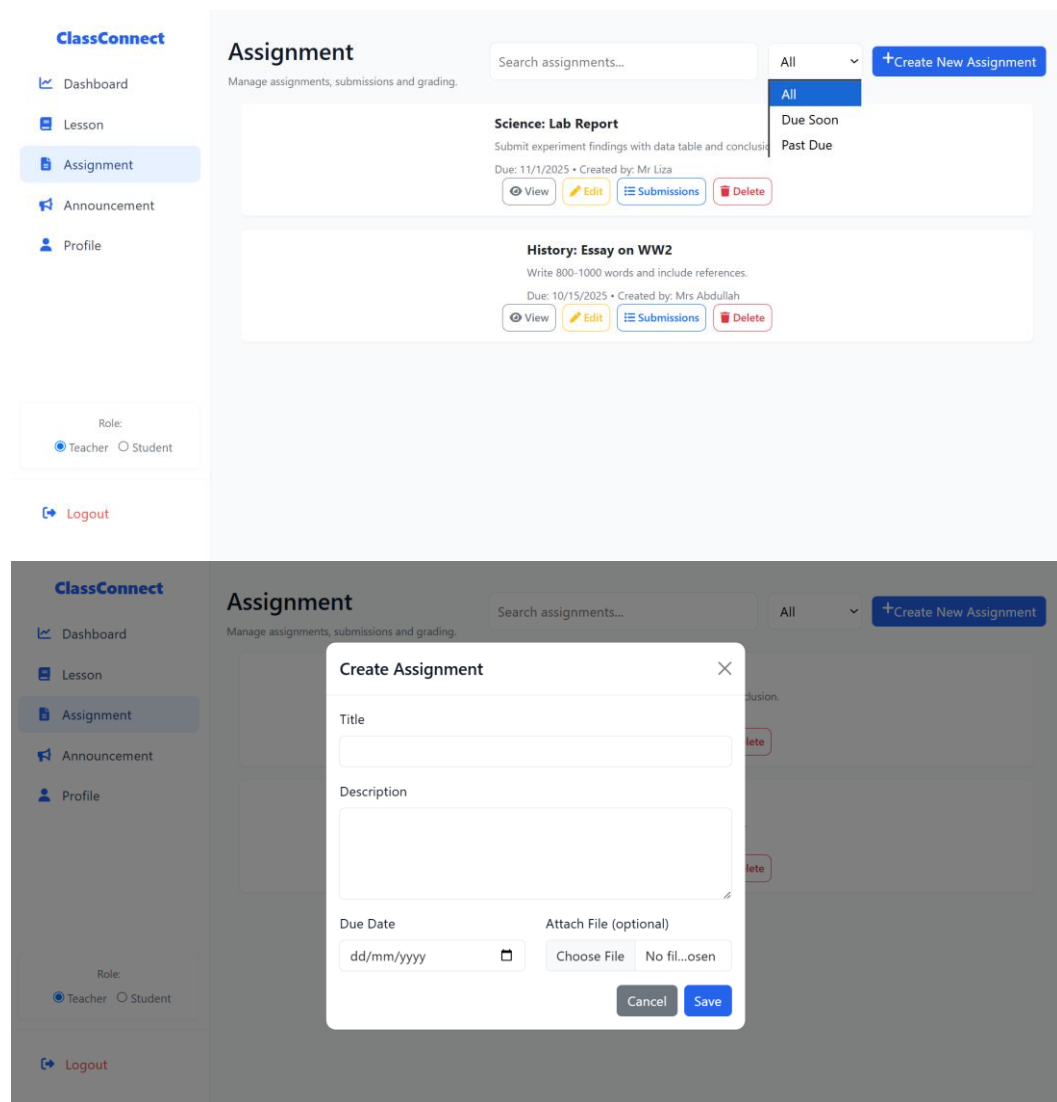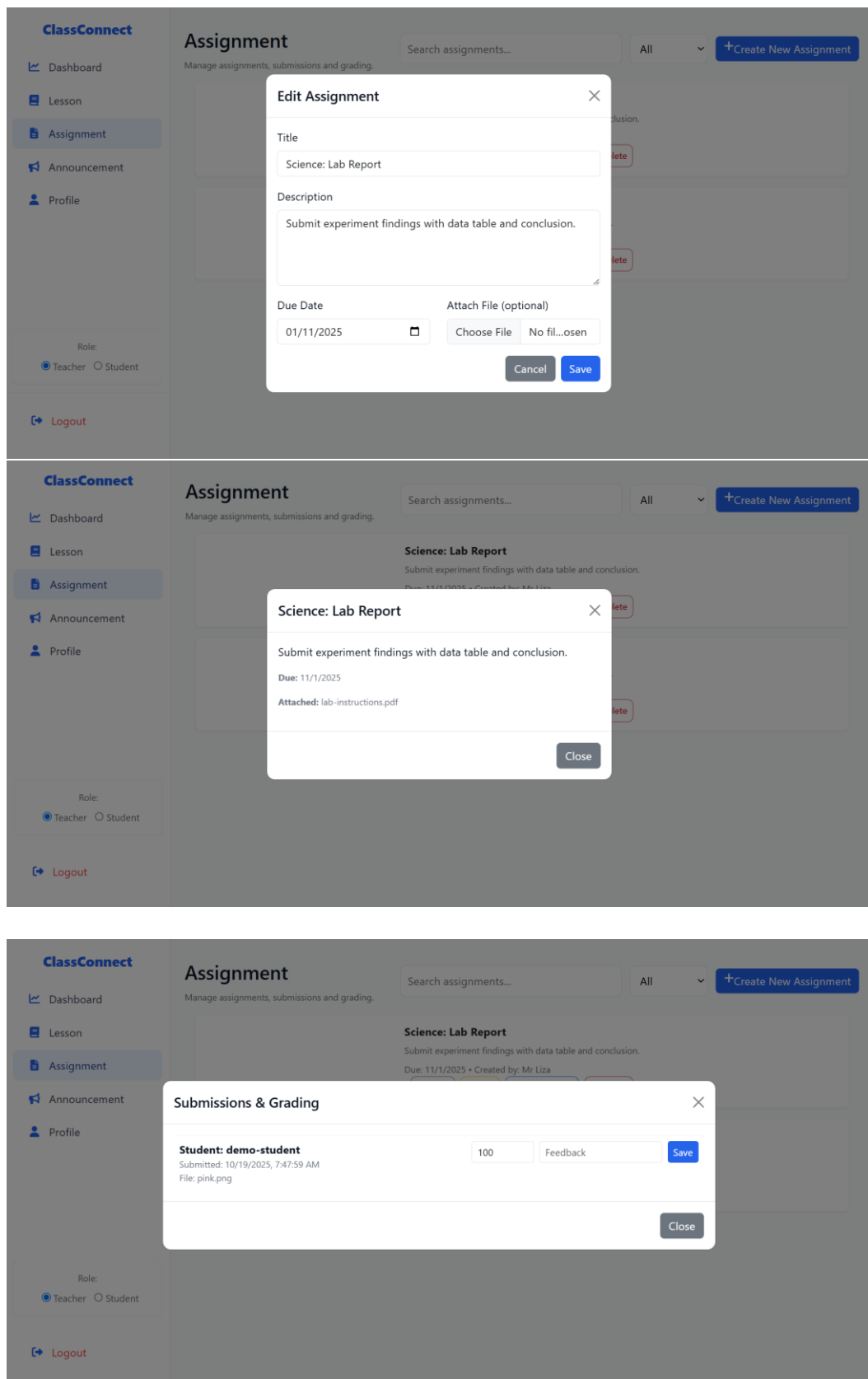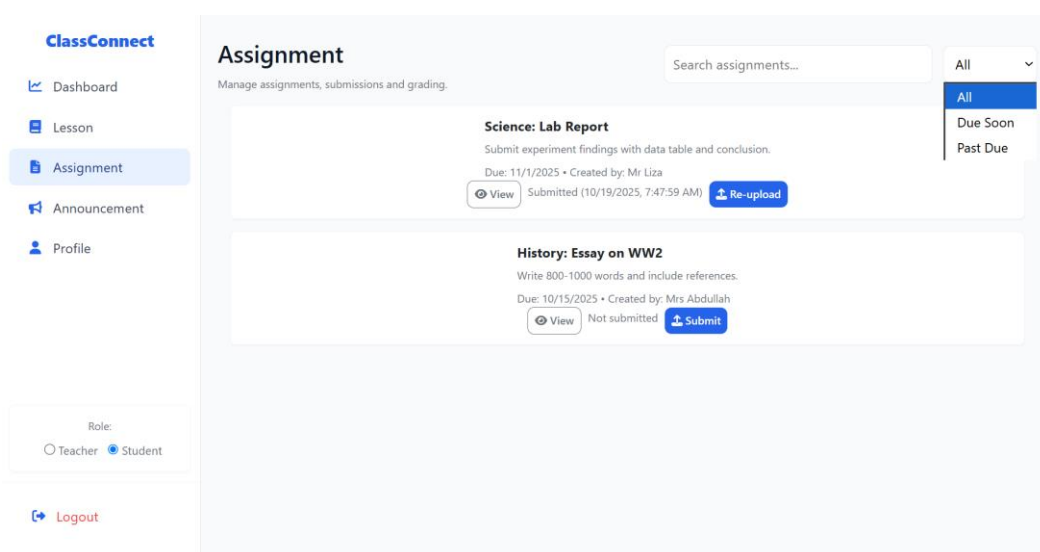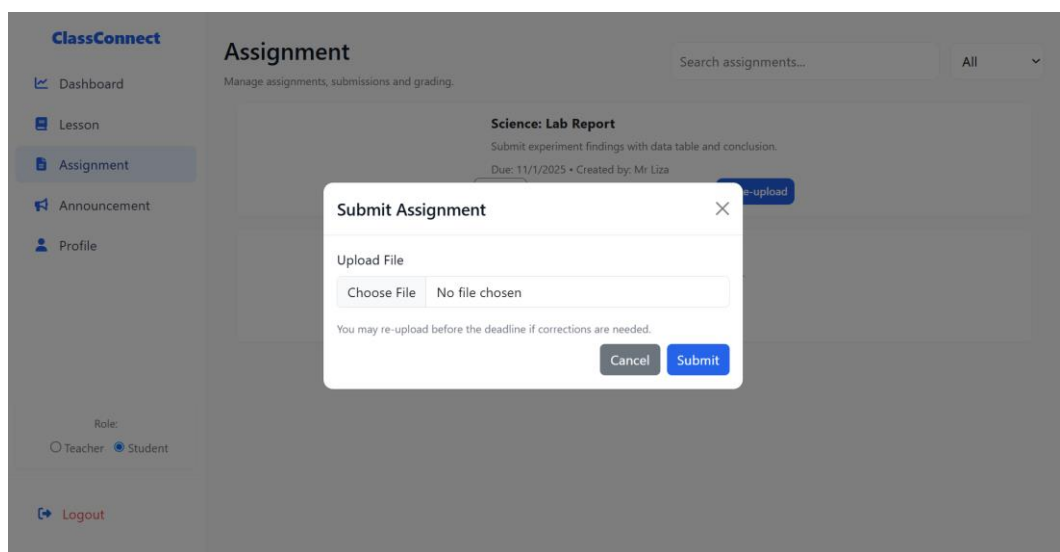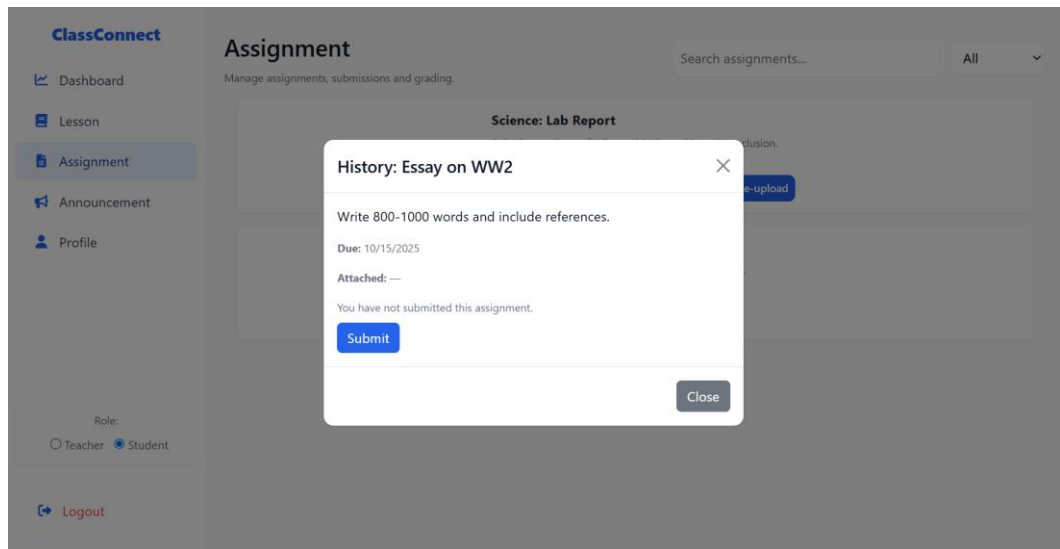
The student page offers a simple and user-friendly interface that focuses on viewing and submitting assignments efficiently. The sidebar layout remains consistent with the teacher view, providing easy navigation to Dashboard, Lesson,

Assignment, Announcement, and Profile, with the Assignment section highlighted to indicate the current page. The header displays the title "Assignment," along with a search bar and filter options that help students quickly find specific tasks or upcoming due dates.

In the main section, assignments are displayed in organized cards containing the title, brief description, due date, and the teacher's name. Each card includes a "View" button that opens a modal showing the complete assignment details, such as full instructions, attached files, and the submission status. From this modal, students can upload their work through the "Submit" option, which allows them to attach files as their completed assignments. They are also allowed to re-upload before the deadline if corrections are needed.

Overall, the student page ensures accessibility and clarity by presenting all essential features in one place, allowing students to stay informed about their tasks and manage their submissions effectively.

ClassConnect

- Dashboard
- Lesson
- Assignment
- Announcement
- Profile

Assignment
Manage assignments, submissions and grading.

Search assignments...   All ▾

Science: Lab Report
...clusion.

...e-upload

History: Essay on WW2   ✕

Write 800-1000 words and include references.

Due: 10/15/2025

Attached: —

You have not submitted this assignment.

Submit

Close

Role:
○ Teacher ● Student

↪ Logout

ClassConnect

- Dashboard
- Lesson
- Assignment
- Announcement
- Profile

Assignment
Manage assignments, submissions and grading.

Search assignments...   All ▾

Science: Lab Report
Submit experiment findings with data table and conclusion.
Due: 11/1/2025 • Created by: Mr Liza

...e-upload

Submit Assignment   ✕

Upload File

Choose File   No file chosen

You may re-upload before the deadline if corrections are needed.

Cancel   Submit

Role:
○ Teacher ● Student

↪ Logout

iv. Module 4: Announcement and Communication Management Module
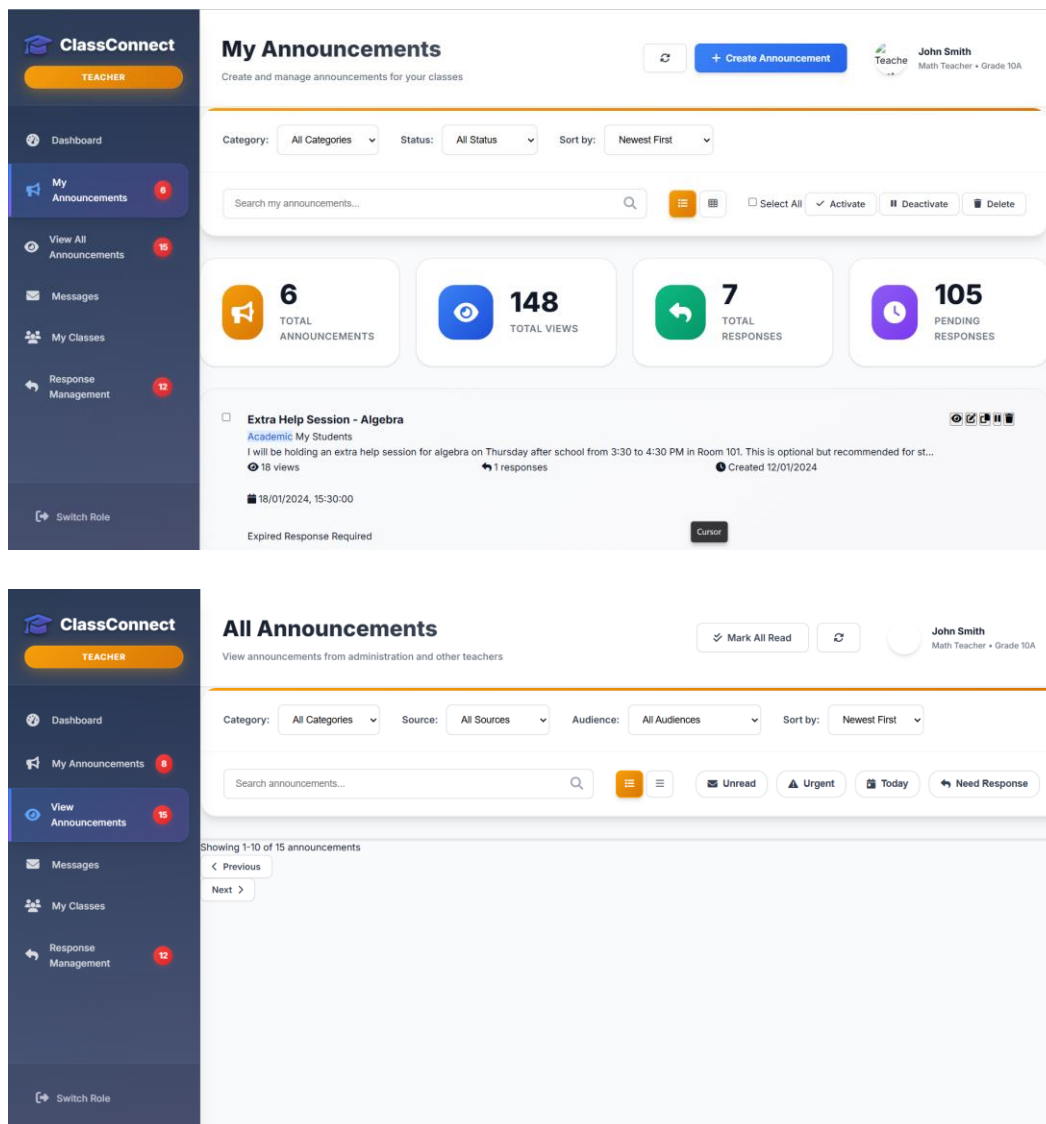
ADMIN & TEACHER
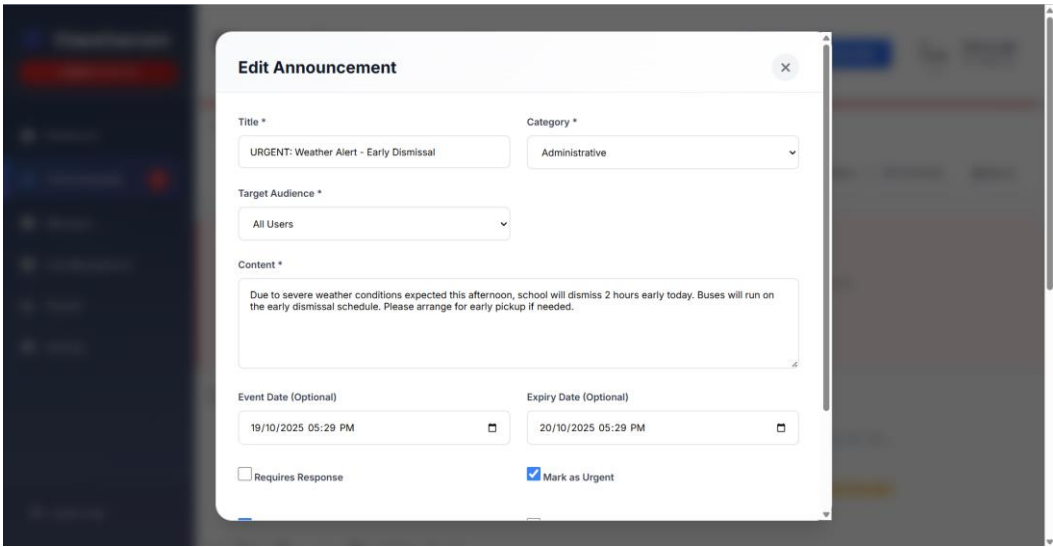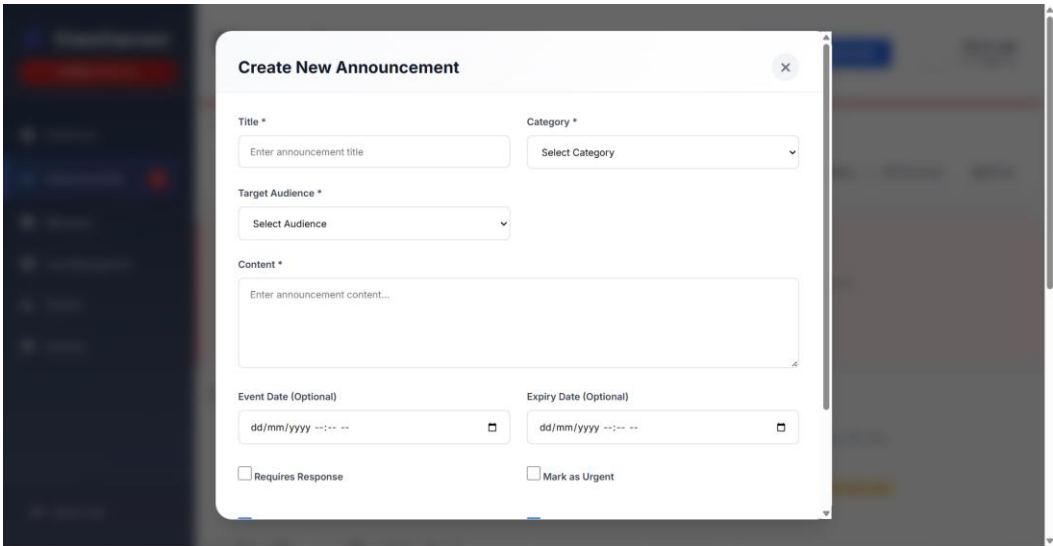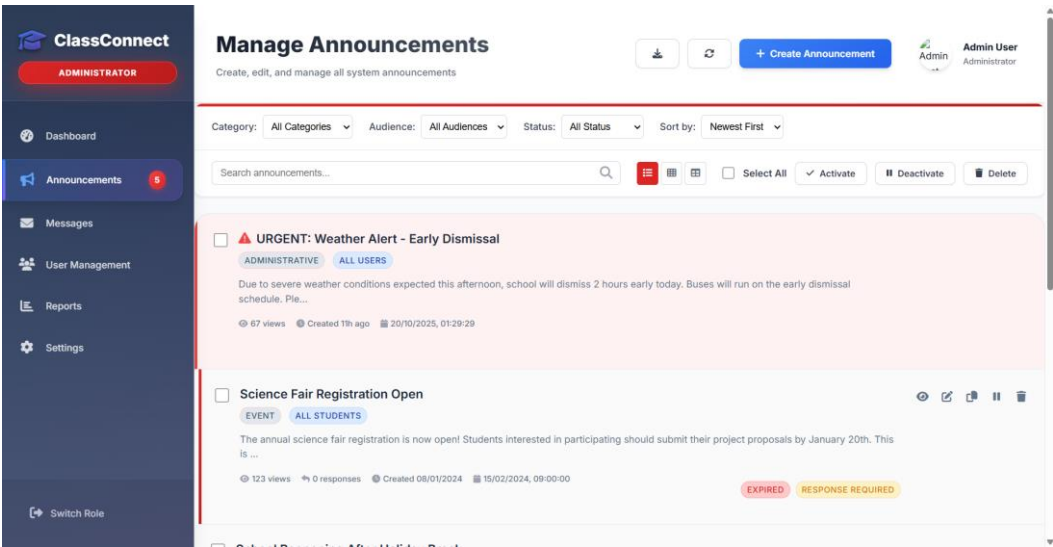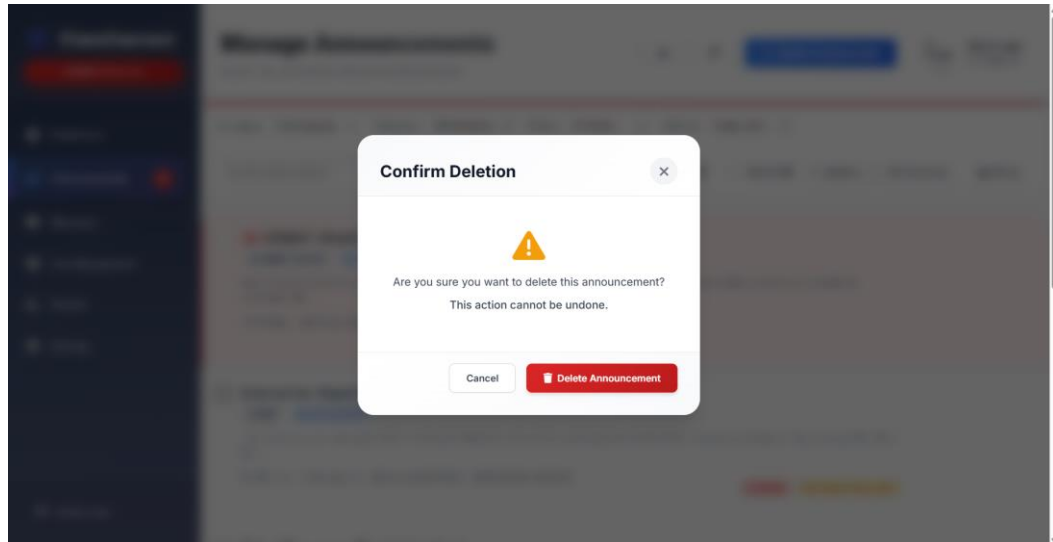
The administrator interface efficiently creates, modify, and manage announcements across the system. Using the **"Create New Announcement"** modal, admins can broadcast platform-wide messages, select appropriate categories such as *Administrative*, *Academic*, or *Emergency*, and target specific user groups or all users simultaneously.

The **"Edit Announcement"** modal allows administrators to update announcement content, adjust urgency levels, and define expiration dates. To prevent accidental deletions, confirmation dialogs are implemented prior to announcement removal. Furthermore, administrators can utilize the **"Compose New Message"** modal to send direct communications to any user, marking messages as *urgent* or *response-required* when necessary.
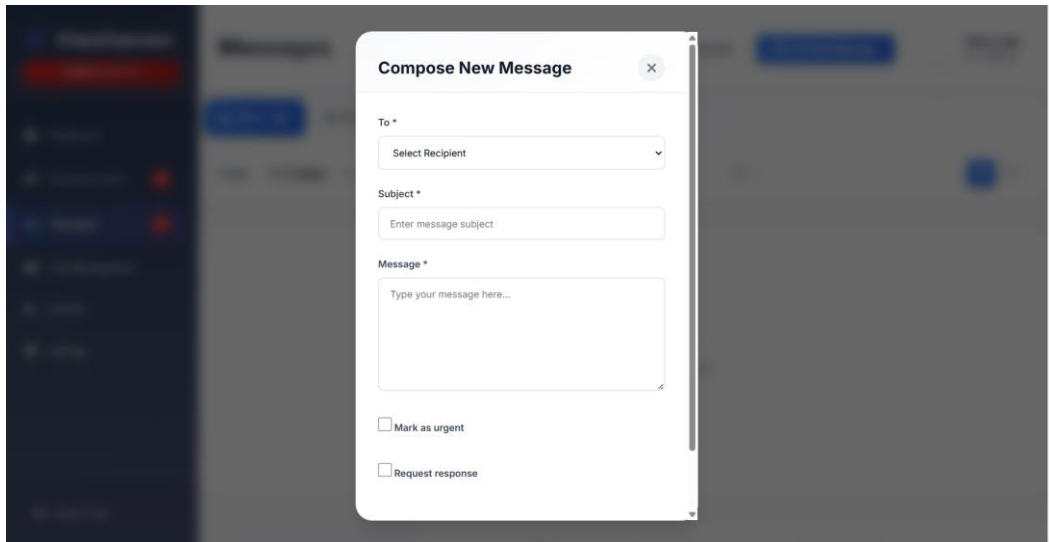
Additional monitoring tools enable admins to evaluate announcement effectiveness, analyze response rates, and oversee communication activities, ensuring transparency, efficiency, and engagement across the educational ecosystem.

The teacher interface provides a structured and efficient environment for managing classroom-level announcements and communication. Teachers can create announcements via an intuitive modal interface similar to the admin's, tailored specifically to their courses and enrolled students. The **"All Announcements"** page offers a consolidated view of both administrative announcements and those created by the teacher, with advanced filtering options based on *category*, *source*, and *audience*.

Quick-access filters help teachers identify *urgent*, *unread*, or *response-required* announcements. Teachers have full control to edit their own announcements, set due dates for tests or events, and manage the announcement lifecycle. The sidebar navigation includes **"My Announcements"** and **"View Announcements"** sections with badge notifications indicating pending actions.
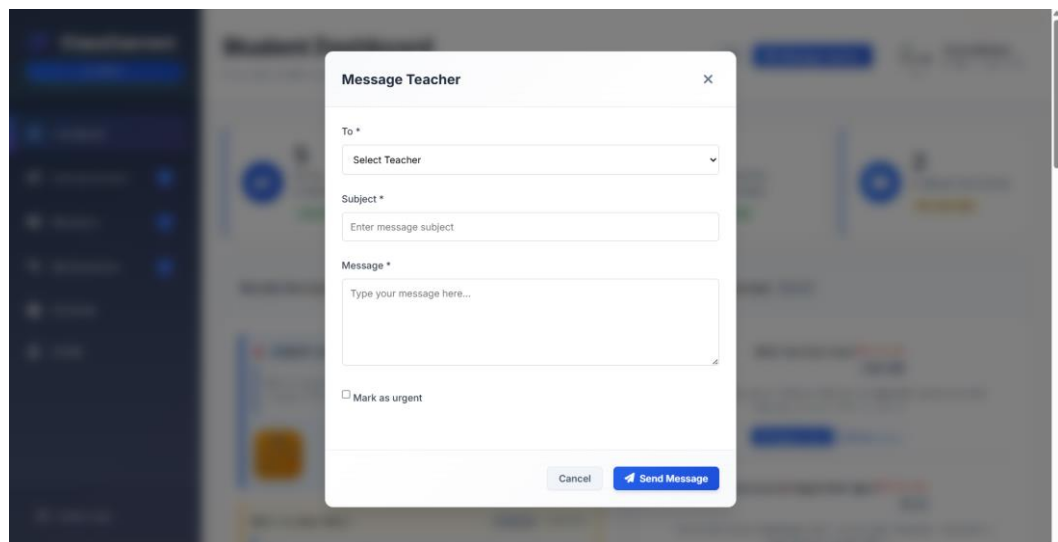
A dedicated **"Response Management"** feature enables teachers to track and evaluate student feedback on announcements. The **"Compose New Message"** function supports direct communication with students, parents, or fellow teachers, allowing messages to be marked as *urgent* or *requiring confirmation* for effective and responsive classroom communication.

STUDENT

The student interface provides an organized and accessible platform for receiving, managing, and responding to communications. The **"Announcements"** page presents all relevant messages in a clean layout, categorized by *type*, *source*, and *status*. Quick-filter options such as *Unread*, *Urgent*, *Need Response*, and *Events* enable students to easily identify important updates.

Each announcement displays clear categorization and sender information, while the sidebar navigation includes badge indicators for unread announcements and pending responses such as "3 Unread," "3 Need Response"). Students can search announcements, sort by date, and navigate through paginated listings for ease of access.

The **"Mark All Read"** feature assists in maintaining notification control, while the **refresh** function ensures the latest updates are always visible, keeping students informed and engaged with current academic and administrative communications.
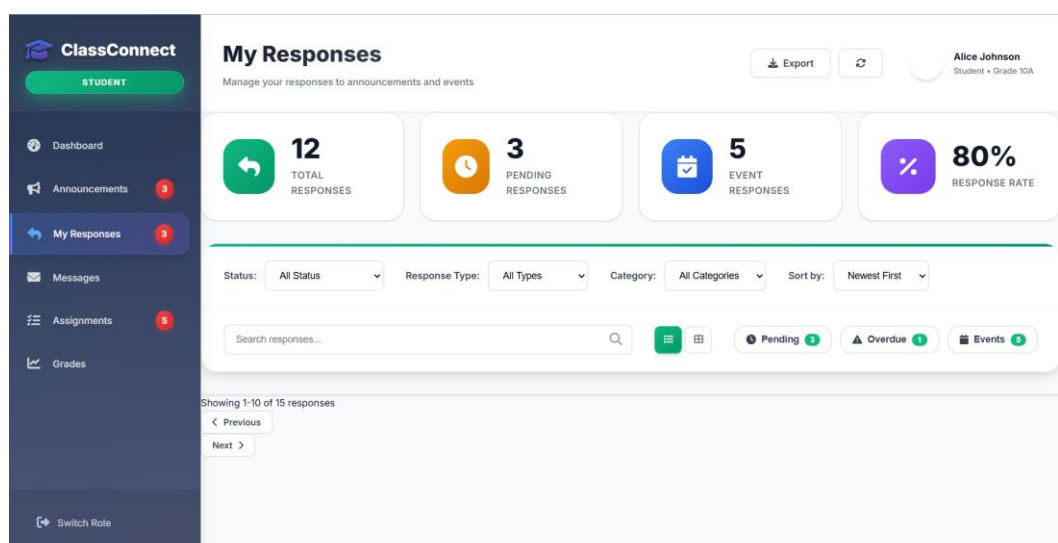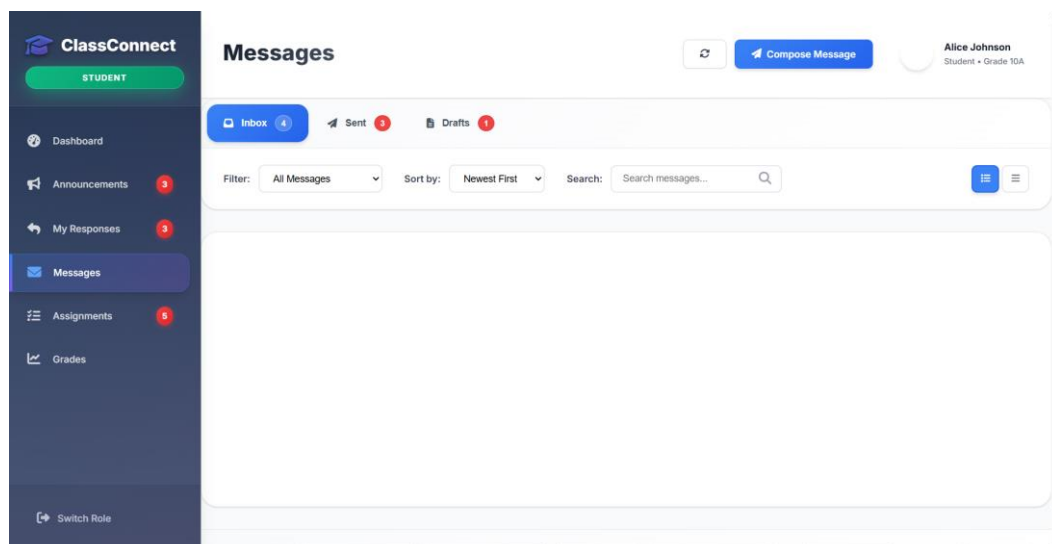
The **"My Responses"** section provides students with a dedicated space to manage their interactions with announcements, events, and messages. Summary cards present key statistics, including total responses, pending items, event participation, and overall response rate. Students can apply filters based on *status*, *type*, or *category*, and use quick filters to focus on *Pending*, *Overdue*, or *Event* responses.

The **"Message Teacher"** modal enables direct communication with instructors, allowing students to specify recipients, add subject lines, write message content, and mark communications as *urgent* when necessary. The **"Messages"** module organizes correspondence into **Inbox**, **Sent**, and **Drafts** folders, equipped with search and filtering capabilities for efficient management. Badge notifications in the sidebar alert students to unread messages, tests, and key updates, ensuring they remain aware of important communications while maintaining an organized and streamlined workflow.

6. Conclusion

To sum up, the creation of the ClassConnect Digital Teaching & Learning Portal attempts to address major issues in the current digital education environment, particularly those pertaining to user administration, lesson planning, assignment processing, and effective communication. In order to create a cohesive and organized online learning environment that improves cooperation and engagement between educators, learners, and administrators, this platform incorporates four crucial modules: User Management, Lesson Management, Assignment Management, and Announcement & Communication.

The project uses the Rapid Application Development (RAD) technique, which emphasizes iterative refinement, rapid prototyping, and constant feedback to make sure the system adapts well to user needs. This method ensures a high-quality, long-lasting solution while cut down on development time while adhering to Software Quality Assurance (SQA) standards like usability, dependability, and scalability.

In the end, ClassConnect provides a cutting-edge, centralized platform that makes teaching and learning tasks easier, expedites digital communication, and creates a dynamic, student-centered atmosphere. It is a progressive endeavour that updates educational procedures, opening the door for more intelligent, effective, and future-ready digital learning opportunities.

7. References

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