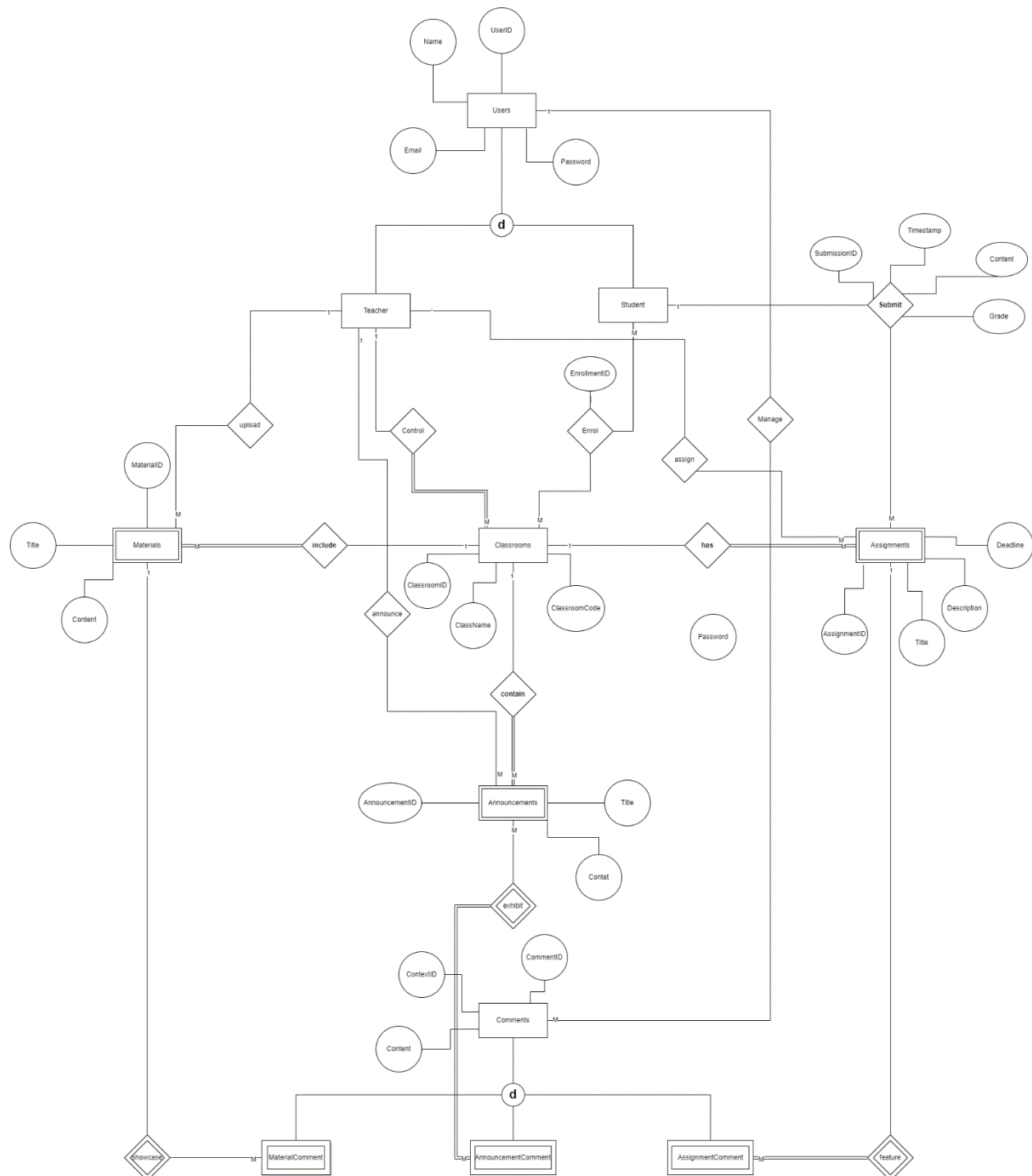**Name:** Muhammad Mahad Sheikh

Section: SE-P

Title: Database Lab Final Project

Enhanced ERD

Mapped Schemas

```sql
CREATE TABLE Users (
    UserID INT IDENTITY(1,1) PRIMARY KEY,
    Name VARCHAR(100),
    Email VARCHAR(100),
    Password VARCHAR(100),
    UserType VARCHAR(50)
);

CREATE TABLE Classrooms (
    ClassroomID INT IDENTITY(1,1) PRIMARY KEY,
    ClassroomCode VARCHAR(100),
    ClassName VARCHAR(100),
    TeacherID INT,
    FOREIGN KEY (TeacherID) REFERENCES Users(UserID)
);


CREATE TABLE Assignments (
    AssignmentID INT IDENTITY(1,1) PRIMARY KEY,
    ClassroomID INT,
    Title VARCHAR(100),
    Description TEXT,
    Deadline DATETIME,
    FOREIGN KEY (ClassroomID) REFERENCES Classrooms(ClassroomID)
);


CREATE TABLE Announcements (
    AnnouncementID INT IDENTITY(1,1) PRIMARY KEY,
    ClassroomID INT,
    Title VARCHAR(100),
    Content TEXT,
    FOREIGN KEY (ClassroomID) REFERENCES Classrooms(ClassroomID)
);


CREATE TABLE Materials (
    MaterialID INT IDENTITY(1,1) PRIMARY KEY,
    ClassroomID INT,
    Title VARCHAR(100),
    Content TEXT,
    FOREIGN KEY (ClassroomID) REFERENCES Classrooms(ClassroomID)
);
```

```sql
CREATE TABLE Enrollments (
    EnrollmentID INT IDENTITY(1,1) PRIMARY KEY,
    StudentID INT,
    ClassroomID INT,
    FOREIGN KEY (StudentID) REFERENCES Users(UserID),
    FOREIGN KEY (ClassroomID) REFERENCES Classrooms(ClassroomID)
);

CREATE TABLE Submissions (
    SubmissionID INT IDENTITY(1,1) PRIMARY KEY,
    AssignmentID INT,
    StudentID INT,
    Content TEXT,
    Timestamp DATETIME,
    Grade INT,
    FOREIGN KEY (AssignmentID) REFERENCES Assignments(AssignmentID),
    FOREIGN KEY (StudentID) REFERENCES Users(UserID)
);

CREATE TABLE Comments (
    CommentID INT IDENTITY(1,1) PRIMARY KEY,
    UserID INT,
    Content TEXT,
    ContextID INT,
    ContextType VARCHAR(50),
    FOREIGN KEY (UserID) REFERENCES Users(UserID),
);
```

Procedures

What these procedures do is delete all associated comments when an assignment, announcement and material is deletes.

```sql
--DROP PROCEDURE DeleteAssignment;

GO
CREATE PROCEDURE DeleteAssignment
    @AssignmentID INT
AS
BEGIN
    -- Delete comments associated with the assignment
    DELETE FROM Comments
    WHERE ContextType = 'Assignment' AND ContextID = @AssignmentID;

    -- Delete submissions associated with the assignment
    DELETE FROM Submissions
    WHERE AssignmentID = @AssignmentID;

    -- Delete the assignment
    DELETE FROM Assignments
    WHERE AssignmentID = @AssignmentID;
END;


--DROP PROCEDURE DeleteAnnouncement;

GO
CREATE PROCEDURE DeleteAnnouncement
    @AnnouncementID INT
AS
BEGIN
    -- Delete comments associated with the assignment
    DELETE FROM Comments
    WHERE ContextType = 'Announcement' AND ContextID = @AnnouncementID;

    -- Delete the assignment
    DELETE FROM Announcements
    WHERE AnnouncementID = @AnnouncementID;
END;
```

```
--DROP PROCEDURE DeleteMaterial;

CREATE PROCEDURE DeleteMaterial
    @MaterialID INT
AS
BEGIN
    -- Delete comments associated with the assignment
    DELETE FROM Comments
    WHERE ContextType = 'Material' AND ContextID = @MaterialID;

    -- Delete the assignment
    DELETE FROM Materials
    WHERE MaterialID = @MaterialID;
END;
```

Description

1. Introduction:

The Google Classroom application is an online platform created to facilitate collaboration and learning between educators and learners. It provides two distinct perspectives: one for instructors and another for pupils. This report presents an overview of the features and functionality of the Google Classroom application, focusing on these two viewpoints.

2. Teacher View:

2.1 Class Management:

Educators possess the capability to establish, erase, and modify classes. They can create a virtual environment where they can interact with their students.

2.2 Assignments:

Instructors can generate assignments with specified deadlines. They can define the title, description, and due date for each task. Learners can submit their completed assignments, and instructors can evaluate and grade them.

2.3 Announcements:

Teachers can share important information with their students by creating announcements. These updates encompass class-related activities, events, or modifications.

2.4 Materials:

Educators have the option to upload and distribute study materials such as documents, presentations, or links. These resources serve as reference materials for students to access and review outside of the classroom.

2.5 Submissions:

For each assignment, teachers can access a compilation of student submissions. They can evaluate and grade these submissions based on predetermined criteria. The grading system allows instructors to provide feedback and assess students' work.

2.6 Comments:

Assignments, announcements, and materials all allow for comments. Teachers can view and remove comments made by students, fostering discussion and interaction within the class.

3. Student View:

3.1 Class Enrollment:

Students can enroll in classes by joining using a specific class code provided by their teachers. This functionality grants students access to class content and enables participation in learning activities.

3.2 Assignments:

Learners can view and complete assignments assigned by their instructors. They have the ability to submit their finished work for assessment and receive grades and feedback.

3.3 Announcements:

Students can access announcements posted by their teachers. These announcements relay vital updates, reminders, or supplementary instructions relevant to the class.

3.4 Materials:

Study materials uploaded by instructors are available for students to access. These materials serve as references and resources to support their learning beyond regular class hours.

3.5 Comments:

Students can actively engage in discussions by leaving comments on assignments, announcements, and materials. However, they can only delete their own comments, allowing them control over their contributions to the class discussion.

3.6 Submission Resubmission:

If permitted by the instructor, students have the option to resubmit their assignments. This feature empowers students to enhance their work based on the feedback received, thereby enriching their learning experience.

4. Conclusion:

The Google Classroom application presents a comprehensive platform for teachers and students to engage in online learning and collaboration. The teacher view encompasses features for managing classes, creating assignments, making announcements, and sharing materials. The student view enables class enrollment, assignment submission, access to announcements and materials, and active participation through comments. Overall, the Google Classroom application enhances the teaching and learning experience by facilitating effective communication, assignment management, and resource sharing within a digital classroom environment.

Connected SQL Studio

1. User Data:

A table called "Users" was generated with fields for UserID, Name, Email, Password, and UserType. This table retains information concerning application users, encompassing teachers and students.

2. Classroom Data:

The creation of a table named "Classrooms" facilitated the administration of virtual classrooms. It encompassed attributes such as ClassroomID, ClassroomCode, ClassName, and TeacherID. The TeacherID serves as a reference to the UserID of the teacher responsible for the class.

3. Assignment Data:

For the purpose of managing assignments, an "Assignments" table was established. It comprised columns for AssignmentID, ClassroomID, Title, Description, and Deadline. The ClassroomID field relates to the respective class's ClassroomID.

4. Announcement Data:

To store announcements, an "Announcements" table was introduced. It comprised fields including AnnouncementID, ClassroomID, Title, and Content. The ClassroomID field acts as a reference to the ClassroomID associated with the announcement.

5. Material Data:

To facilitate the management of study materials, a "Materials" table was implemented. It included attributes such as MaterialID, ClassroomID, Title, and Content. The ClassroomID field served as a reference to the ClassroomID linked to the materials.

6. Enrollment Data:

To handle class enrollments, an "Enrollments" table was established. It consisted of columns for EnrollmentID, StudentID, and ClassroomID. The StudentID field refers to the UserID of

the student, while the ClassroomID field corresponds to the ClassroomID of the enrolled class.

7. Submission Data:
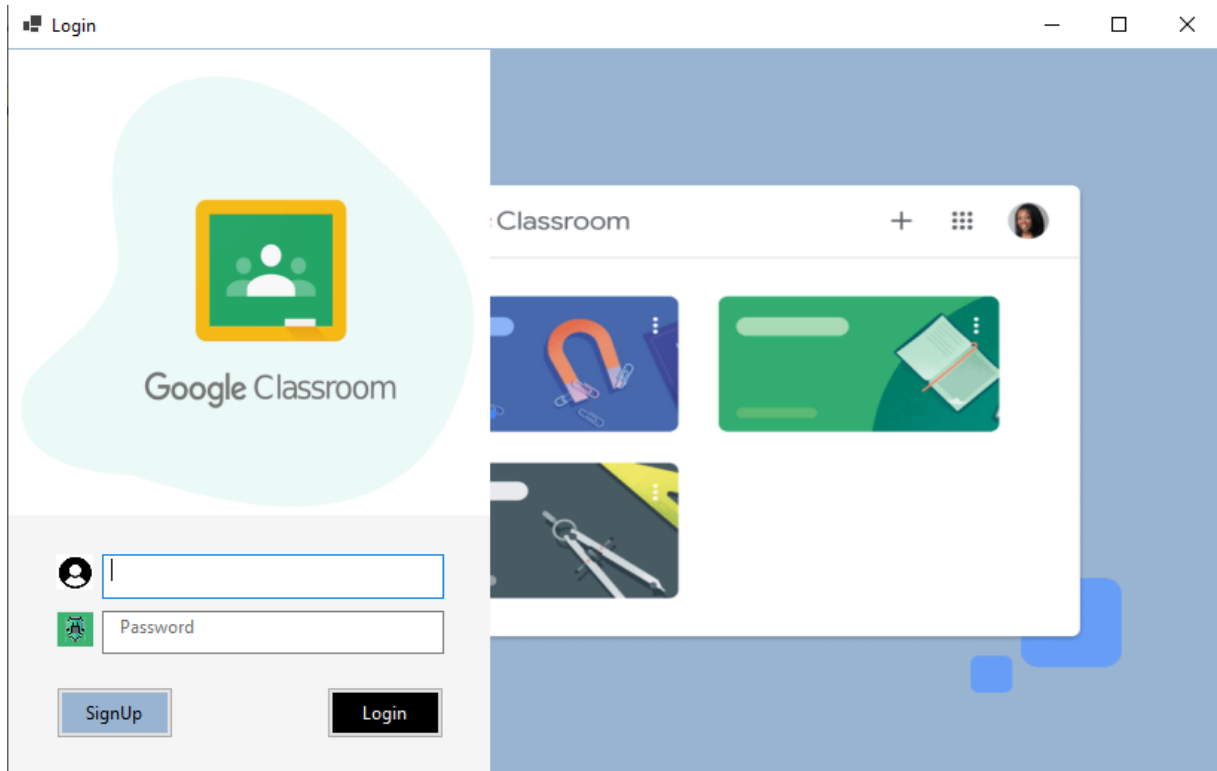
A "Submissions" table was created to manage assignment submissions. It encompassed fields such as SubmissionID, AssignmentID, StudentID, Content, Timestamp, and Grade. The AssignmentID field referred to the AssignmentID associated with the submission, and the StudentID field referenced the UserID of the submitting student.

8. Comment Data:

An additional table, "Comments," was generated to store comments made on various class-related elements. It consisted of fields like CommentID, UserID, Content, ContextID, and ContextType. The UserID field pointed to the UserID of the user who posted the comment, while the ContextID and ContextType fields were utilized to identify the specific context (assignment, announcement, or material) to which the comment pertained.
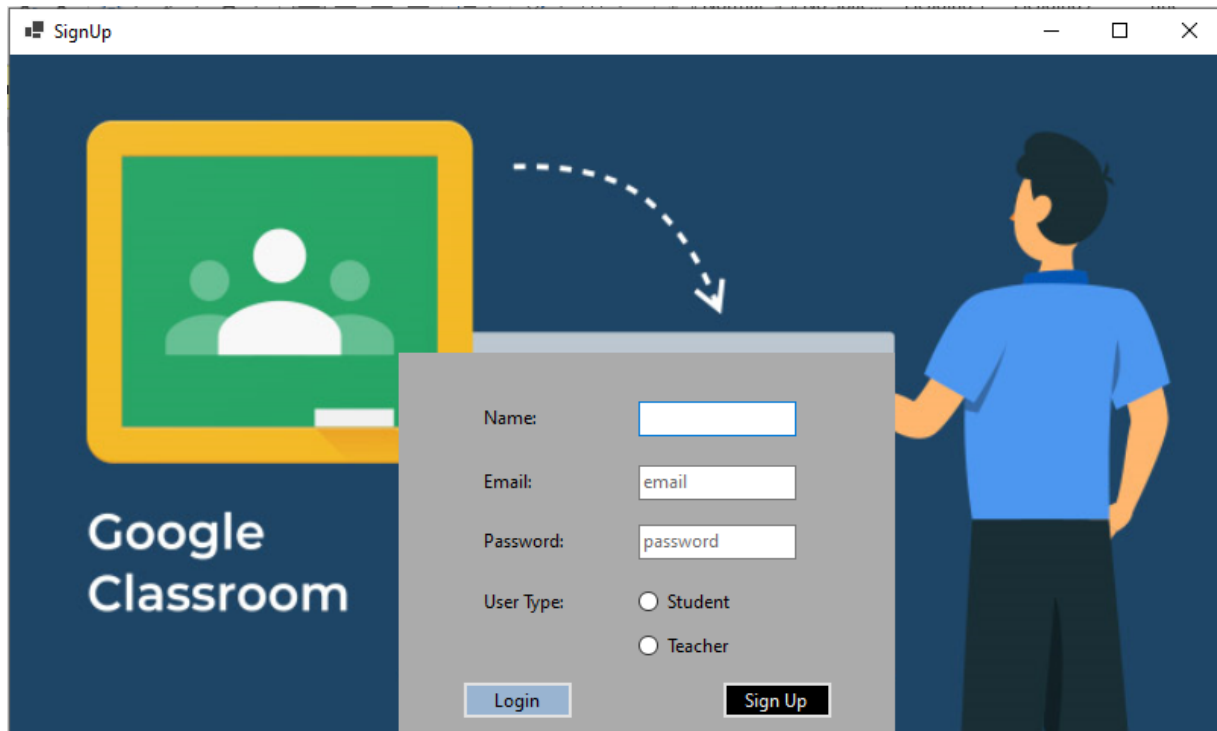
By implementing these tables and their respective fields, SQL Studio facilitated efficient storage and management of user data, classroom information, assignments, announcements, study materials, enrollments, submissions, and comments. This comprehensive setup provided a solid foundation for the Google Classroom application's functionalities and operations.

LOGIN PAGE

SIGN UP PAGE

TEACHER VIEW(Create unique class)

UPDATE CLASSROOM

DELETE CLASSROOM

VIEW ASSIGNMENT IN A CLASS

ON CLICKING ON ASSIGNMENT

Form7

ASSIGNMENT
Assignment 1

Classroom Code: MATH101
Class Name: Math

Assignment | Comment | Submission | Report

Assignment ID: 1
Classroom ID: 1
Title: Assignment 1
Description: Complete exercises 1-10
Deadline: 5/30/2023 11:59:59 PM

Delete

ASSIGNMENT PAGE (Teacher can delete all comments)

Form7

ASSIGNMENT
Assignment 1

Classroom Code: MATH101
Class Name: Math

Assignment | **Comment** | Submission | Report

Comment ID: 1
Comment: This is the first comment on assignment 1
by 8

Delete

Comment ID: 2
Comment: This is the second comment on assignment 1
by 10

Delete

Comment ID: 253
Comment: mahad
by 1

Delete

Send

LIST OF SUBMISSIONS(Assignment Report)

Form7   — □ ✕

ASSIGNMENT
Assignment 1

Classroom Code: MATH101
Class Name: Math

| Assignment | Comment | Submission | **Report** |

Submission ID: 1
Submission: Submission content 1
Time: 5/20/2023 10:00:00 AM
by 8

Grade: 10   [Return]

Submission ID: 7
Submission: Submission content 1
Time: 5/20/2023 10:00:00 AM
by 9

UnMarked   [Return]

Submission ID: 167
Submission: Submission content 1
Time: 5/22/2023 4:00:00 PM
by 35

UnMarked   [Return]

Submission ID: 173
Submission: Submission content 1
Time: 5/22/2023 4:00:00 PM
by 36

UnMarked   [Return]

ANNOUNCEMENT PAGE

Form8   — □ ✕

ANNOUNCEMENT
Welcome to MATH101!

Classroom Code: MATH101
Class Name: Math

| Announcement | Comment |

announcement ID: 1
Classroom ID: 1
Title: Welcome to MATH101!
Description: This is the first announcement for MATH101.

[Delete]

Form8   —   □   ✕

ANNOUNCEMENT
Welcome to MATH101!

Classroom Code: MATH101
Class Name: Math

Announcement | Comment

Comment ID: 85
Comment: This is the first comment on Announcement 1
by 8   [Delete]

Comment ID: 86
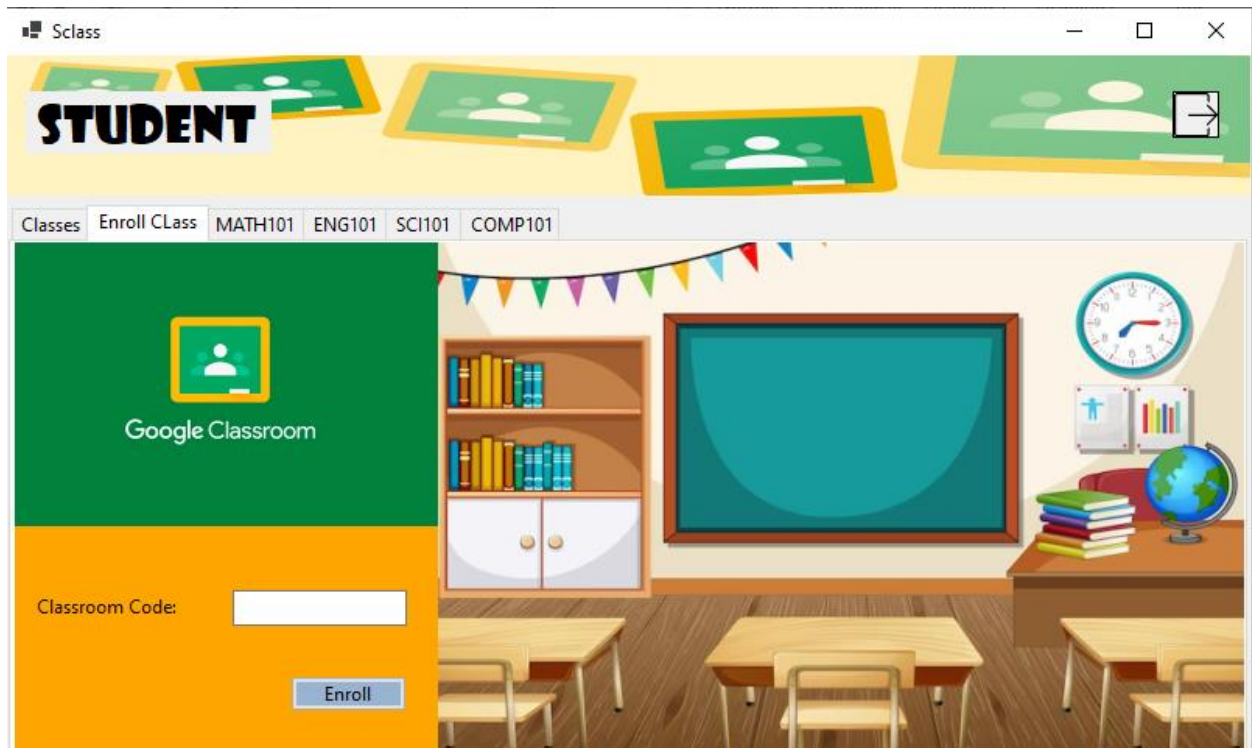Comment: This is the second comment on Announcement 1
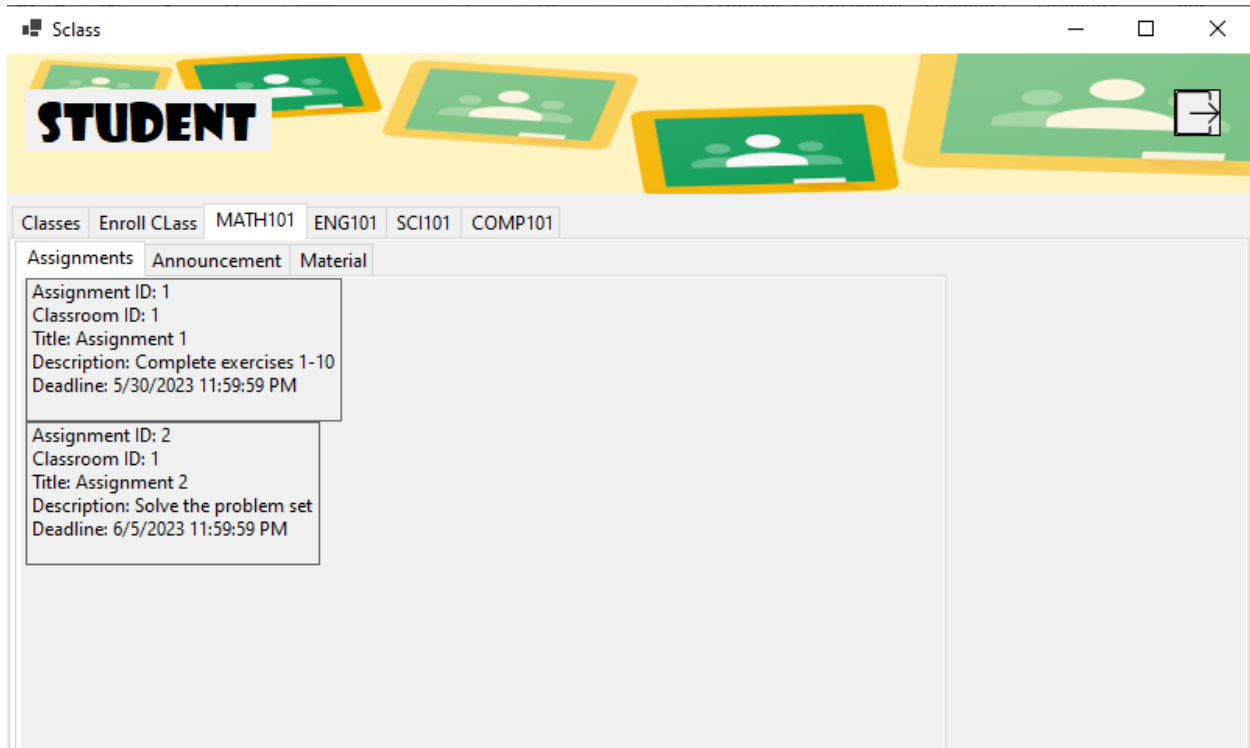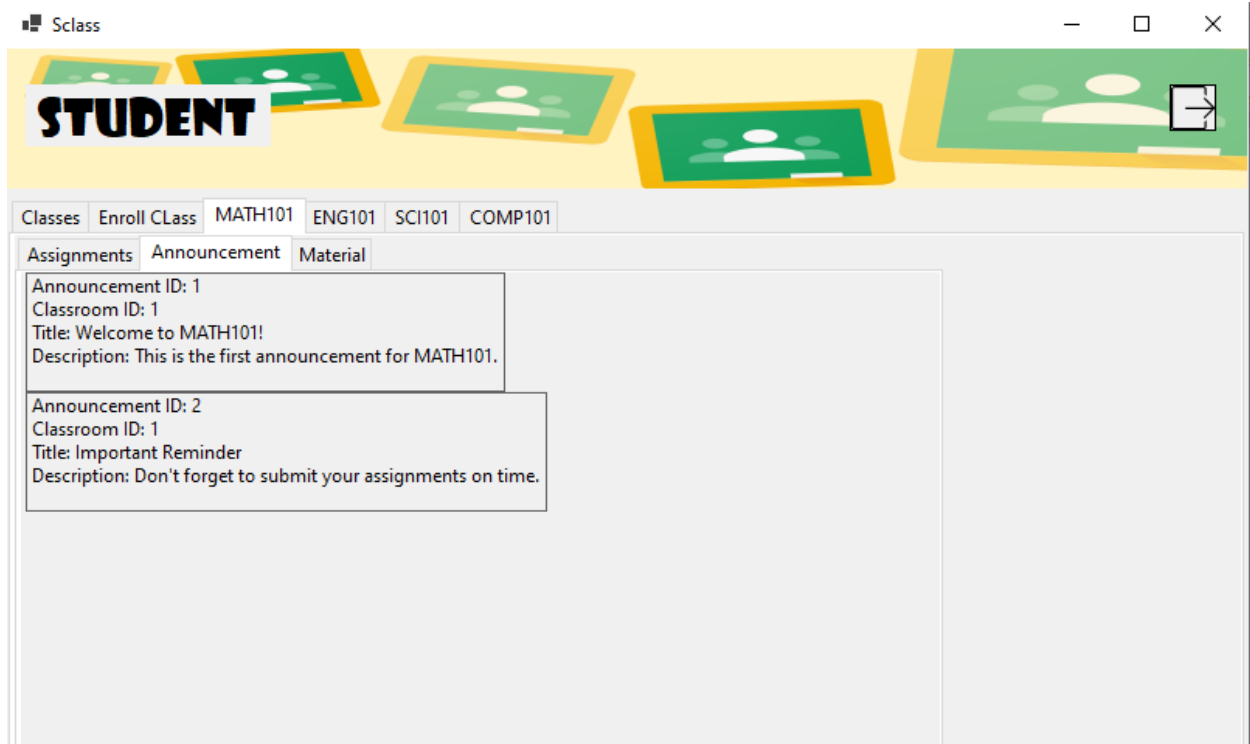by 10   [Delete]

[   ] [Send]

MATERIAL PAGE IS SIMILAR LIKE ANNOUNCEMENT

STUDENT VIEW
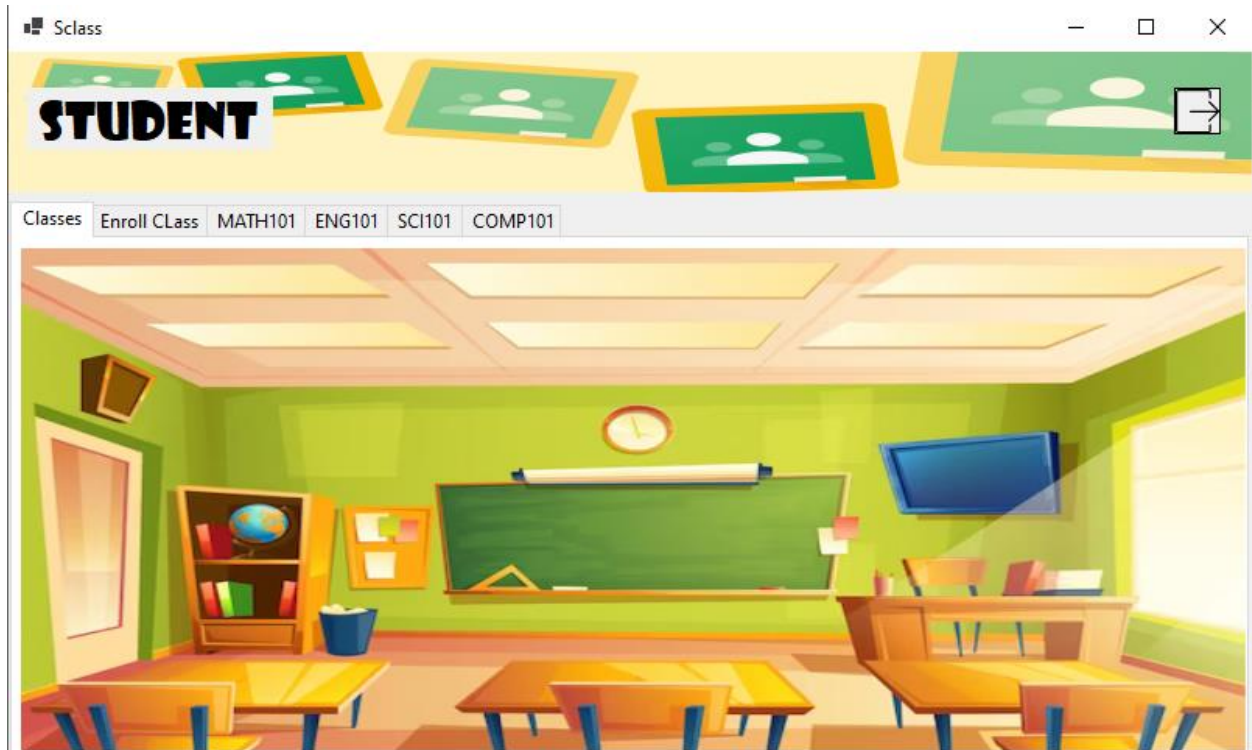
ENROLL IN CLASS

CLASS VIEW FOR STUDENT

Sclass — □ ✕

STUDENT

Classes Enroll CLass **MATH101** ENG101 SCI101 COMP101

Assignments Announcement Material

Assignment ID: 1
Classroom ID: 1
Title: Assignment 1
Description: Complete exercises 1-10
Deadline: 5/30/2023 11:59:59 PM

Assignment ID: 2
Classroom ID: 1
Title: Assignment 2
Description: Solve the problem set
Deadline: 6/5/2023 11:59:59 PM

Sclass — □ ✕

STUDENT

Classes Enroll CLass **MATH101** ENG101 SCI101 COMP101

Assignments **Announcement** Material

Announcement ID: 1
Classroom ID: 1
Title: Welcome to MATH101!
Description: This is the first announcement for MATH101.

Announcement ID: 2
Classroom ID: 1
Title: Important Reminder
Description: Don't forget to submit your assignments on time.

■ Sclass   —   □   ✕

STUDENT

Classes | Enroll CLass | MATH101 | ENG101 | SCI101 | COMP101

Assignments | Announcement | Material

Material ID: 1
Classroom ID: 1
Title: Lecture Slides
Description: Download the lecture slides for this week.

Material ID: 2
Classroom ID: 1
Title: Additional Resources
Description: Check out these additional resources for extra practice.

■ Sclass   —   □   ✕

STUDENT

Classes | Enroll CLass | MATH101 | ENG101 | SCI101 | COMP101

Assignments | Announcement | Material

Assignment ID: 5
Classroom ID: 3
Title: Lab Report
Description: Submit the lab report for the experiment
Deadline: 6/10/2023 11:59:59 PM

Assignment ID: 6
Classroom ID: 3
Title: Research Project
Description: Prepare a research project on a scientific topic
Deadline: 6/15/2023 11:59:59 PM

ASSIGNMENT PAGE FOR STUDENTS

CANNOT RETURN EMPTY SUBMISSION

CAN ONLY DELETE HIS/HER OWN COMMENTS

ANNOUNCEMENT PAGE FOR STUDENTS

Form8

ANNOUNCEMENT
Welcome to SCI101!

Classroom Code: SCI101
Class Name: Science

Announcement | Comment

Comment ID: 93
Comment: This is the first comment on Announcement 5
by 8

Comment ID: 94
Comment: This is the second comment on Announcement 5
by 10

Delete

Send

MATERIAL PAGE FOR STUDENTS

Form9

MATERIAL
Course Syllabus

Classroom Code: ENG101
Class Name: English

Material | Comment

announcement ID: 3
Classroom ID: 2
Title: Course Syllabus
Description: Download the course syllabus for ENG101.

Delete

CANNOT MAKE AN EMPTY COMMENT