Project Report

Database systems lab

Course Instructor

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Introduction

Creating a duplicate of Google Classroom, a website program that supports online teaching and learning, was the aim of this project. Our goal was to create a space where instructors and students could communicate, share materials, and organize assignments. This report summarizes the problemsolving strategy used, the project's lessons learned, and suggestions for future enhancements.

Goals of the Project

The project goal is creating a web application in the integrated development environment of Microsoft Visual Studio using the C# programming language. A SQL Server database served as the backend of the program and the goal was to store user data, class information, announcements, assignments, and materials. Also, relationships between different entities, such as professors, students, courses, assignments, and submissions, were intended to be captured by the database. To improve the database's functionality, SQL concepts including views, insert-update-delete operations, joins, sub queries, stored procedures, functions, and triggers were used.

1. Backend Development

The project used a class-based methodology for controlling users and other application elements. Tables were made for instructors, students, classes, announcements, assignments, materials, submissions, and comments. Foreign key constraints were used to construct the connections between these entities. Implementing functions including getTeachername and procedures including unenroll.

2. Designing user interface

The Windows Forms framework was used to create the application's graphical user interface (GUI). Teachers can manage courses, announcements, assignments, resources, and comments with ease as of the interface's user-friendly design. Functionalities for enrolling in classes, turning in assignments, tracking progress, and managing comments were made available to students. In order to give consumers an effortless user experience, the GUI design intended to imitate Google Classroom's well-known appearance and feel.

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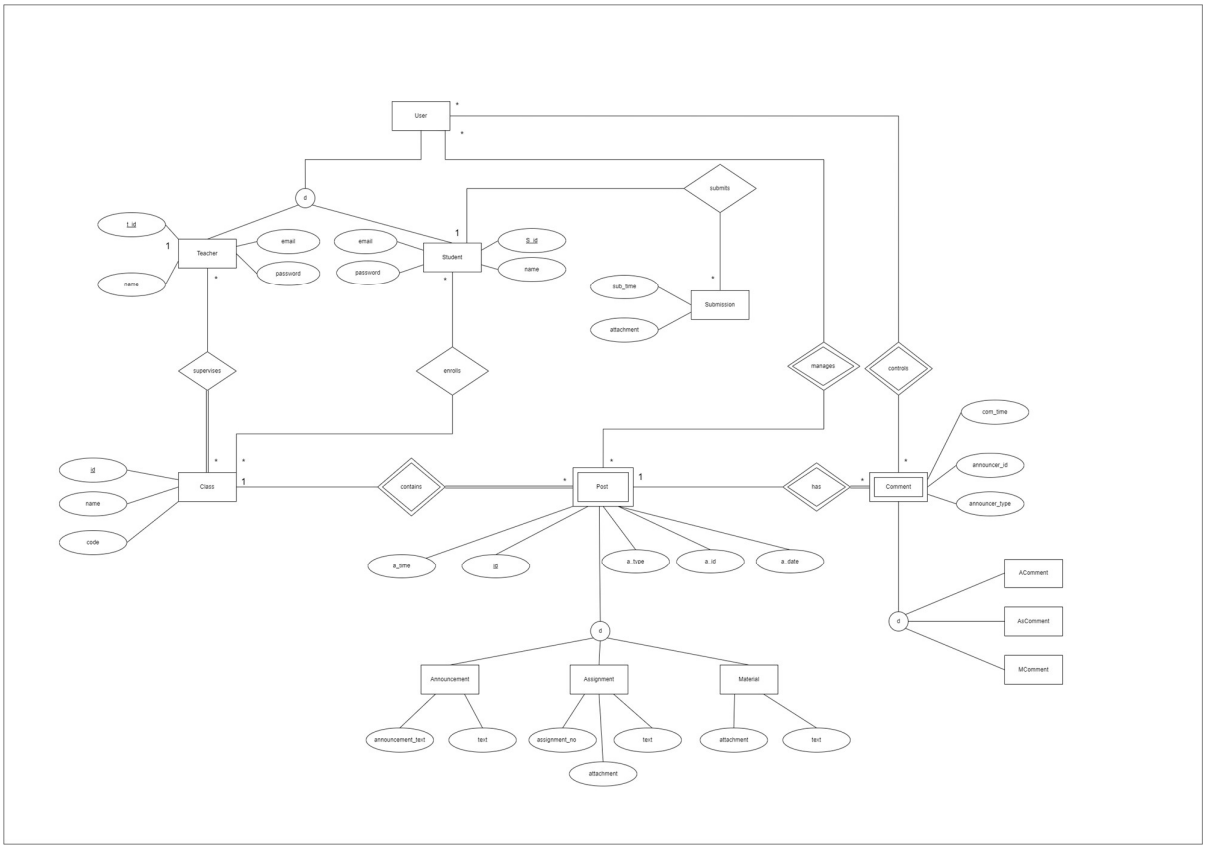


Methodology and Learnings from the Project

An iterative strategy was used during the development process that includes firstly front-end development, then backend and then finally database connection, so we did gradual implementation and frequent testing. This strategy enabled us to spot problems early on and fix them, leading to a more reliable and stable program's execution. The project gave useful insights into C# backend programming, managing databases, and user interface design. It improved our knowledge of data management, software development processes, and SQL principles.

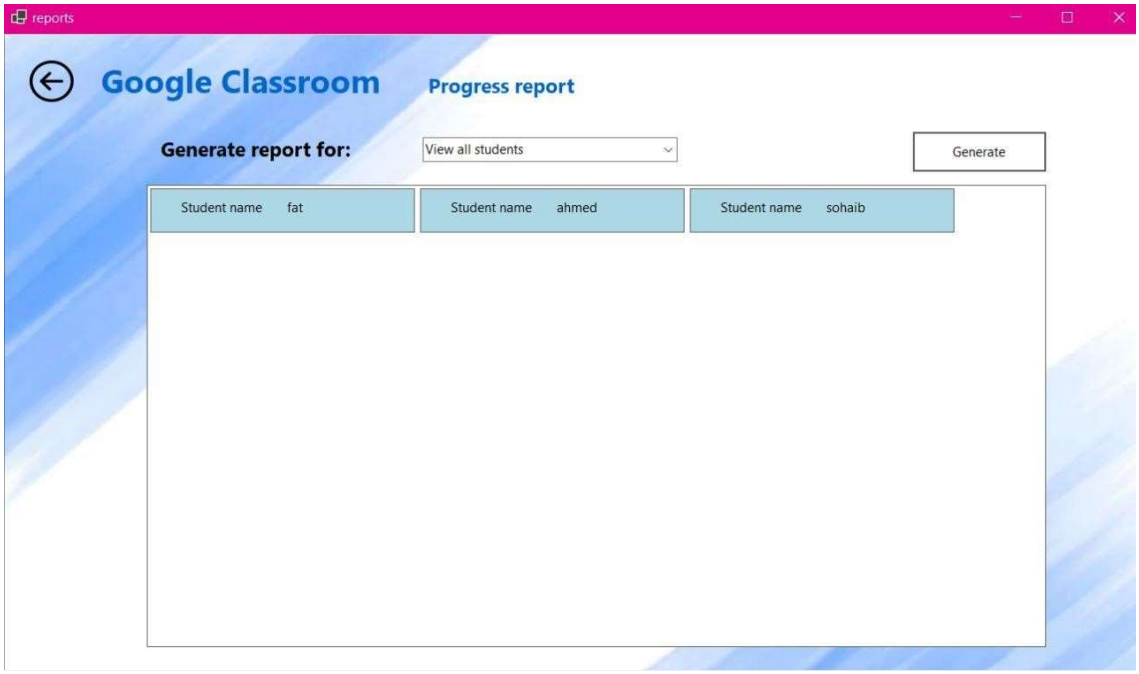
Assumptions

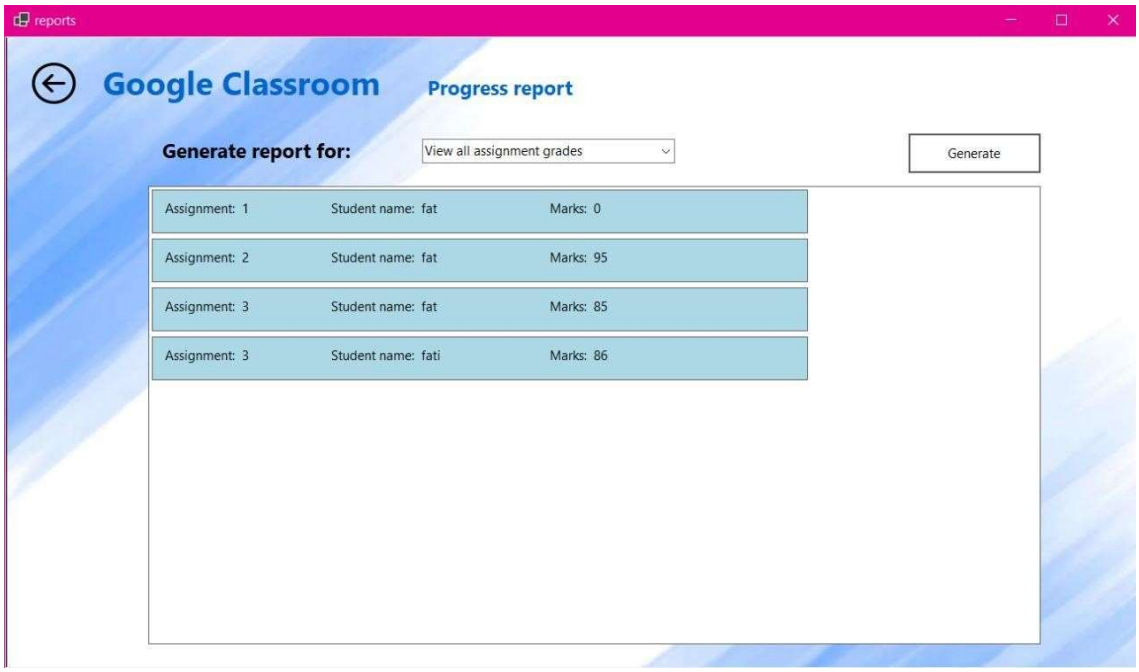
- One teacher can only teach one class
- Class name and code is always unique
- Each assignment in a class has unique number

Future Improvements

Even if the project's main goals were met, there are still several things that might be done better. First, adding more sophisticated features like real-time communication for immediate responses and easier communication between teachers and students, similarly online document editors and plagiarism checker like in Turnitin will improve the user experience. Finally, improving the application's adaptability and performance would guarantee trouble-free operation even with a big volume of users and data.

Screen shots of Reports





Conclusion

In conclusion, the Google Classroom replica project was successful in building an application that tried to replicate the essential features of the original system. To create a user-friendly and feature-rich application, the project showed how to effectively employ the C# programming language, Microsoft Visual Studio, and SQL Server database. The knowledge obtained from working on the project has helped us improve our grasp of GUI design, backend programming, and database management. This project could prove to be a useful resource with more improvements and modifications for teachers and students alike.