Project Write-Up: Simple OOP-based System for Rainbow School

Objective: The objective of this project is to build a Console .NET Project using C# that implements a simple Object-Oriented Programming (OOP) based system for storing information about teachers, students, and subjects at Rainbow School. The system will utilize design patterns, and the application will provide functionality to test the classes using sample data.

Tools and Requirements:

- Visual Studio Windows Console Project
- C# language
- GitHub repository for version control and tracking (with specific ignored files)

Class Formats:

1. Student class:

- Fields: Name, Class and section

2. Teacher class:

- Fields: Name, Class and section

3. Subject class:

- Fields: Name, Subject code, Teacher

Operations Required on Classes:

1. Filling up the lists with data: The application should allow users to enter data for students, teachers, and subjects to populate the respective lists.

2. Displaying the following lists:

- Students in a class: Given a class and section, the application should display a list of students in that class.
- Subjects taught by a teacher: Given a teacher's name, the application should display a list of subjects taught by that teacher.

Requirements and Deliverables:

1. Version control with Git: The project should be tracked on a GitHub repository.

2. Ignored files: The documentation should list the files that are ignored during the final push to the GitHub repository to avoid unnecessary versioning of sensitive or temporary files.

3. GitHub repository link: The document should include the link to the GitHub repository for easy tracking and access.

4. Step-by-step process documentation: A clear and detailed explanation of how the project was completed, including setting up the project, implementing classes, handling input and output, and any design patterns used.

Step-by-Step Process: The step-by-step process documentation should include, but not limited to, the following stages:

1. Setting up the Visual Studio Windows Console Project.

2. Creating the Student, Teacher, and Subject classes based on the given formats.

3. Implementing the methods for filling up the lists with data.

4. Implementing the methods to display students in a class and subjects taught by a teacher.

5. Handling input from users for data entry and queries.

6. Incorporating any design patterns used in the system and explaining their relevance.

7. Testing the system with sample data and demonstrating the functionality.

Code Implementation: Source Code File attach separately.

Conclusion: The Simple OOP-based System for Rainbow School has been successfully implemented using C# and the Console .NET Project in Visual Studio. The project follows OOP principles and design patterns to efficiently store and manage information about teachers, students, and subjects.

Future Enhancements:

- Add error handling and input validation for user inputs.
- Implement additional functionalities, such as updating student/teacher information or searching for subjects by code.
- Improve the user interface for a more user-friendly experience.
- Expand the project to include additional features for comprehensive school management.

Submission: The project has been tracked on a GitHub repository. You can access the code and other project files by following this link**: [https://github.com/rastogi102/Project3_OOP_Based_System.git]**