Title: Create an OOP Based System for Storing School Data Using Design Patterns

Introduction:

The "Create an OOP Based System for Storing School Data Using Design Patterns" is a C# .NET application that allows users to store and manage information about students, teachers, and subjects at Rainbow School. The application follows OOP principles and uses classes to organize and store data. It provides an interactive console-based interface to add students, teachers, and subjects, as well as display students in a class and subjects taught by a teacher.

Classes and their Purpose:

Student:

Properties:

Name: Represents the name of the student.

ClassAndSection: Represents the class and section in which the student belongs.

Teacher:

Properties:

Name: Represents the name of the teacher.

ClassAndSection: Represents the class and section assigned to the teacher.

Subject:

Properties:

Name: Represents the name of the subject.

SubjectCode: Represents the code of the subject.

Teacher: Represents the teacher who teaches the subject.

SchoolManager:

Purpose: Manages the lists of students, teachers, and subjects and provides methods to add and display data.

Properties:

Teachers: Provides access to the list of teachers.

Application Flow:

Main Method:

Initialize the SchoolManager object.

Enter a while loop to present a menu of options to the user until they choose to exit.

User Input Loop:

The user is presented with a menu displaying the following options:

Add Student

Add Teacher

Add Subject

Display Students in a Class

Display Subjects Taught by a Teacher

Exit

Add Student (Option 1):

Prompts the user to enter the student's name and class and section.

Calls the AddStudent method of the SchoolManager class to add the student to the list.

Add Teacher (Option 2):

Prompts the user to enter the teacher's name and class and section.

Calls the AddTeacher method of the SchoolManager class to add the teacher to the list.

Add Subject (Option 3):

Prompts the user to enter the subject name and subject code.

Displays the list of teachers and prompts the user to select a teacher by index.

Calls the AddSubject method of the SchoolManager class to add the subject to the list, associating it with the selected teacher.

Display Students in a Class (Option 4):

Prompts the user to enter the class and section to display students.

Calls the DisplayStudentsInClass method of the SchoolManager class to show the list of students in the specified class and section.

Display Subjects Taught by a Teacher (Option 5):

Prompts the user to enter the teacher's name to display subjects.

Calls the DisplaySubjectsTaughtByTeacher method of the SchoolManager class to show the list of subjects taught by the specified teacher.

Exit (Option 6):

Sets the exit flag to true, breaking the loop, and terminating the program.

Creating a GitHub Repository

Create a new GitHub repository branch with an appropriate name

“StoringDatUsingOOPS”.

Initialize a Git repository in the local project folder using the following

command in the terminal or Git Bash: git init

git add .

git commit -m "GitHubProject commit"

git remote add origin

https://github.com/PrashastVats1/Practice-Projects

git push -u origin master

Conclusion:

The " Create an OOP Based System for Storing School Data Using Design Patterns " provides a user-friendly interface to manage information about students, teachers, and subjects at Rainbow School. The application follows Object-Oriented Programming principles to organize data into classes, and the main method uses a while loop to allow users to perform various operations repeatedly until they decide to exit the application. The application is a useful tool for schools to maintain and access essential information about their students and teachers.

GitHub Repository Link:

https://github.com/PrashastVats1/Practice-Projects/tree/StoringDataUsingOOPS