# C# Assignments for Practice

### **Assignment 1: Classes and Objects**

**Task:**

1. Create a class Student with properties for Name, Age, and Grade.
2. Implement a constructor to initialize these properties.
3. Create an object of the Student class and print out its details.

### **Assignment 2: Constructors**

**Task:**

1. Create a class Course with properties for CourseCode, CourseName, and Instructor.
2. Implement a parameterless constructor that sets default values for these properties.
3. Implement a parameterized constructor to initialize these properties with given values.
4. Create objects of the Course class using both constructors and display their details.

### **Assignment 3: Static Variable, Classes and Methods**

**Task:**

1. Create a static class CourseManager with a static list (courses) to store available courses.
2. Implement static methods to add courses (AddCourse()), retrieve courses (GetCourses()), and check course availability (IsCourseAvailable()).
3. Use the CourseManager class in the main program to demonstrate adding courses, retrieving them, and checking availability.

### **Assignment 4: Abstract Methods and Abstract Classes**

**Task:**

1. Create an abstract class Course with abstract methods CalculateTotalHours() and PrintCourseDetails().
2. Define properties such as CourseCode, CourseName, Instructor, and DurationHours.
3. Implement two derived classes ProgrammingCourse and MathCourse inheriting from Course with overridden methods and specific properties.
4. Demonstrate polymorphism by calling CalculateTotalHours() and PrintCourseDetails() on objects of both derived classes.

### **Assignment 5: Implement Properties for Courses**

**Task:**

1. Modify the Course class to encapsulate the DurationHours property with validation to ensure it's non-negative.
2. Implement properties for CourseCode, CourseName, and Instructor with standard property syntax.
3. Use the Course class in the main program to demonstrate setting and getting course properties and handling validation errors.