National Textile University

Department of Computer Science

Lab#05: Object Oriented Programming- COC2071

Instructor: Abdul Qadeer Bilal

Registration #		Name	
Total Marks	20 marks (10 marks each)	Marks Obtained	
Tools	Visual Studio		
Objectives	1) Method Overriding		
Note	Solve the following problems using the concepts we have covered so far		

QUESTION:1

You are tasked with developing a travel booking system. Design a set of classes to represent different types of travel services, such as flights and hotels. Implement a base class called **TravelService** with the following attributes:

- **ServiceName**: A string representing the name of the travel service.
- **BasePrice**: A double representing the base price of the service.

CalculateTotalCost (Virtual Method)

Derive two classes, **Flight** and **Hotel**, from the **TravelService** base class. Each derived class should override the **CalculateTotalCost** method to implement its specific pricing strategy.

1. **Flight**: For flights, the total cost should include an additional charge for baggage. Add a property **BaggageFee** to represent the cost of baggage. Override the **CalculateTotalCost** method to calculate the total cost as the sum of the base price and the baggage fee.
2. **Hotel**: For hotels, the total cost should include an additional tax. Add a property **TaxRate** to represent the tax rate. Override the **CalculateTotalCost** method to calculate the total cost as the sum of the base price and the tax.

Write a program that demonstrates the use of these classes. Create instances of **Flight** and **Hotel**, set their attributes, and then calculate and display their total costs.

QUESTION:2

You are tasked with developing an Online Learning Platform that offers different levels of courses. Design a class hierarchy to represent different course levels and implement methods to display course details. Additionally, use the **new** keyword to explicitly hide methods from the base class, and use the **sealed** keyword to prevent further overriding.

1. Create a base class called **Course** with the following attributes:

- **CourseName**: A string representing the name of the course.
- **Level**: An integer representing the level of the course.
- **DisplayCourseDetails** method to include information regarding course.

2. Derive two classes, **BeginnerCourse** and **AdvancedCourse**, from the **Course** base class.
   - For **BeginnerCourse**:
     - Add a property **RequiredMaterials** (a string) to represent the required materials for the course.
     - Override the **DisplayCourseDetails** method to include information specific to beginner courses.
     - Use the **new** keyword to explicitly hide the base class method.
   - For **AdvancedCourse**:
     - Add a property **Prerequisites** (a string) to represent the prerequisites for the course.
     - Override the **DisplayCourseDetails** method to include information specific to advanced courses.
     - Use the **sealed** keyword to prevent further overriding of this method.

Write a program to demonstrate the use of these classes. Create instances of **BeginnerCourse** and **AdvancedCourse**, set their attributes, and then display their course details.

Attach Solutions in the Solution Book with you name, Rool no and Lab plan number accordingly.