**Exercise 10: Implementing the MVC Pattern**

**Scenario:**

You are developing a simple web application for managing student records using the MVC pattern.

**Steps:**

1. **Create a New Java Project:**
   * Create a new Java project named **MVCPatternExample**.
2. **Define Model Class:**
   * Create a class **Student** with attributes like **name, id, and grade**.
3. **Define View Class:**
   * Create a class **StudentView** with a method **displayStudentDetails()**.
4. **Define Controller Class:**
   * Create a class **StudentController** that handles the communication between the model and the view.
5. **Test the MVC Implementation:**
   * Create a main class to demonstrate creating a **Student**, updating its details using **StudentController**, and displaying them using **StudentView**.

**CODE:**

using System;

class Student

{

public string Name { get; set; }

public int Id { get; set; }

public string Grade { get; set; }

}

class StudentView

{

public void DisplayStudentDetails(Student student)

{

Console.WriteLine("Student Details:");

Console.WriteLine($"ID: {student.Id}");

Console.WriteLine($"Name: {student.Name}");

Console.WriteLine($"Grade: {student.Grade}");

Console.WriteLine();

}

}

class StudentController

{

private Student model;

private StudentView view;

public StudentController(Student model, StudentView view)

{

this.model = model;

this.view = view;

}

public void SetStudentName(string name) => model.Name = name;

public void SetStudentId(int id) => model.Id = id;

public void SetStudentGrade(string grade) => model.Grade = grade;

public string GetStudentName() => model.Name;

public int GetStudentId() => model.Id;

public string GetStudentGrade() => model.Grade;

public void UpdateView()

{

view.DisplayStudentDetails(model);

}

}

class Program

{

static void Main()

{

// Create model

Student student = new Student

{

Name = "Alice",

Id = 101,

Grade = "A"

};

// Create view

StudentView view = new StudentView();

// Create controller

StudentController controller = new StudentController(student, view);

// Initial view

controller.UpdateView();

// Update student info using controller

controller.SetStudentName("Alice Johnson");

controller.SetStudentGrade("A+");

// Updated view

controller.UpdateView();

}

} **OUTPUT:**

