**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**.

// Model

public class Student

{

private string name;

private string id;

private string grade;

public string Name

{

get { return name; }

set { name = value; }

}

public string Id

{

get { return id; }

set { id = value; }

}

public string Grade

{

get { return grade; }

set { grade = value; }

}

}

// View

public class StudentView

{

public void DisplayStudentDetails(string name, string id, string grade)

{

Console.WriteLine("Student Details:");

Console.WriteLine("Name: " + name);

Console.WriteLine("ID: " + id);

Console.WriteLine("Grade: " + grade);

}

}

// Controller

public class StudentController

{

private Student model;

private StudentView view;

public StudentController(Student model, StudentView view)

{

this.model = model;

this.view = view;

}

public string Name

{

get { return model.Name; }

set { model.Name = value; }

}

public string Id

{

get { return model.Id; }

set { model.Id = value; }

}

public string Grade

{

get { return model.Grade; }

set { model.Grade = value; }

}

public void UpdateView()

{

view.DisplayStudentDetails(model.Name, model.Id, model.Grade);

}

}

// Main Program

public class MVCPatternExample

{

public static void Main(string[] args)

{

Student student = new Student();

student.Name = "Alice";

student.Id = "S123";

student.Grade = "A";

StudentView view = new StudentView();

StudentController controller = new StudentController(student, view);

controller.UpdateView();

controller.Name = "Bob";

controller.Grade = "B+";

controller.UpdateView();

}

}

