**Design Pattern And Principles**

**EXERCISE 10: Implementing the MVC Pattern**

**Source Code**

// Main.java

// Model class

class Student {

private String name;

private String id;

private String grade;

public Student(String name, String id, String grade) {

this.name = name;

this.id = id;

this.grade = grade;

}

// Getters and setters

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getId() {

return id;

}

public void setId(String id) {

this.id = id;

}

public String getGrade() {

return grade;

}

public void setGrade(String grade) {

this.grade = grade;

}

}

// View class

class StudentView {

public void displayStudentDetails(String name, String id, String grade) {

System.out.println("Student Details:");

System.out.println("Name : " + name);

System.out.println("ID : " + id);

System.out.println("Grade: " + grade);

System.out.println();

}

}

// Controller class

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.setName(name);

}

public String getStudentName() {

return model.getName();

}

public void setStudentId(String id) {

model.setId(id);

}

public String getStudentId() {

return model.getId();

}

public void setStudentGrade(String grade) {

model.setGrade(grade);

}

public String getStudentGrade() {

return model.getGrade();

}

public void updateView() {

view.displayStudentDetails(model.getName(), model.getId(), model.getGrade());

}

}

// Test class

public class Main {

public static void main(String[] args) {

// Create model and view

Student student = new Student("Ram", "1224", "A+");

StudentView view = new StudentView();

// Create controller

StudentController controller = new StudentController(student, view);

// Initial display

controller.updateView();

// Update model via controller

controller.setStudentName("Gigi");

controller.setStudentId("1260");

controller.setStudentGrade("B");

// Display updated student data

controller.updateView();

}

}

**OUTPUT**

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