**Exercise 10: Implementing the MVC Pattern**

**Student.java**

package com.mycompany.mvcpattern;

public 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;

    }

    public String getName() { return name; }

    public String getId() { return id; }

    public String getGrade() { return grade; }

    public void setName(String name) { this.name = name; }

    public void setId(String id) { this.id = id; }

    public void setGrade(String grade) { this.grade = grade; }

}

**StudentController.java**

package com.mycompany.mvcpattern;

public 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 void setStudentId(String id) {

        model.setId(id);

    }

    public void setStudentGrade(String grade) {

        model.setGrade(grade);

    }

    public String getStudentName() {

        return model.getName();

    }

    public String getStudentId() {

        return model.getId();

    }

    public String getStudentGrade() {

        return model.getGrade();

    }

    public void updateView() {

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

    }

}

**StudentView.java**

package com.mycompany.mvcpattern;

public class StudentView {

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

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

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

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

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

    }

}

**MVCPattern.java**

package com.mycompany.mvcpattern;

import java.util.Scanner;

public class MVCPattern {

   public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter student name: ");

        String name = sc.nextLine();

        System.out.print("Enter student ID: ");

        String id = sc.nextLine();

        System.out.print("Enter student grade: ");

        String grade = sc.nextLine();

        Student student = new Student(name, id, grade);

        StudentView view = new StudentView();

        StudentController controller = new StudentController(student, view);

        controller.updateView();

        System.out.println("\nUpdate student info? (yes/no): ");

        String choice = sc.nextLine().toLowerCase();

        if (choice.equals("yes")) {

            System.out.print("New name: ");

            controller.setStudentName(sc.nextLine());

            System.out.print("New ID: ");

            controller.setStudentId(sc.nextLine());

            System.out.print("New grade: ");

            controller.setStudentGrade(sc.nextLine());

            System.out.println("\nUpdated student details:");

            controller.updateView();

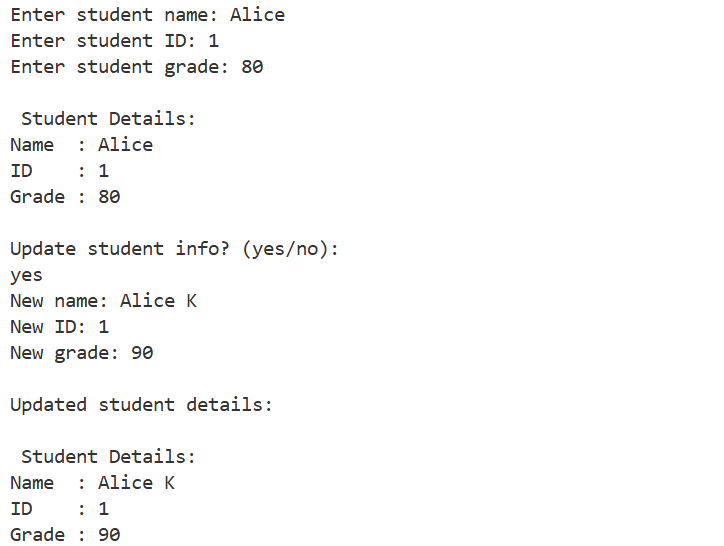
        }

        sc.close();

    }

}

**Output**

****