public class Student {

// Private instance variables to encapsulate data

private int id;

private String name;

private int age;

// Default constructor

public Student() {

// You can initialize default values here if needed

}

// Parameterized constructor

public Student(int id, String name, int age) {

this.id = id;

this.name = name;

this.age = age;

}

// Accessor (Getter) methods

// These methods return the value of the private instance variables

public int getId() {

return id;

}

public String getName() {

return name;

}

public int getAge() {

return age;

}

// Mutator (Setter) methods

// These methods allow modification of the private instance variables

// They can also include validation logic

public void setId(int id) {

if (id > 0) { // Example of validation

this.id = id;

} else {

System.out.println("Student ID must be positive.");

}

}

public void setName(String name) {

if (name != null && !name.trim().isEmpty()) { // Example of validation

this.name = name;

} else {

System.out.println("Student name cannot be empty.");

}

}

public void setAge(int age) {

if (age >= 0 && age <= 120) { // Example of validation

this.age = age;

} else {

System.out.println("Student age must be between 0 and 120.");

}

}

// Main method to demonstrate usage

public static void main(String[] args) {

// Create a Student object using the default constructor

Student student1 = new Student();

student1.setId(101);

student1.setName("Alice");

student1.setAge(20);

System.out.println("Student 1 Details:");

System.out.println("ID: " + student1.getId());

System.out.println("Name: " + student1.getName());

System.out.println("Age: " + student1.getAge());

System.out.println("\nAttempting to set invalid values:");

student1.setId(-5); // This will trigger the validation message

student1.setName(""); // This will trigger the validation message

student1.setAge(150); // This will trigger the validation message

// Create a Student object using the parameterized constructor

Student student2 = new Student(102, "Bob", 22);

System.out.println("\nStudent 2 Details:");

System.out.println("ID: " + student2.getId());

System.out.println("Name: " + student2.getName());

System.out.println("Age: " + student2.getAge());

}

}