**DESIGN PATTERNS AND PRINCIPLES:**

**Exercise 3: Implementing the Builder Pattern:**

**Computer.java**

public class Computer {

private String CPU;

private String RAM;

// Optional attributes

private String storage;

private String graphicsCard;

private Computer(Builder builder) {

this.CPU = builder.CPU;

this.RAM = builder.RAM;

this.storage = builder.storage;

this.graphicsCard = builder.graphicsCard;

}

// Static nested Builder class

public static class Builder {

private String CPU;

private String RAM;

private String storage;

private String graphicsCard;

// Builder constructor with required fields

public Builder(String CPU, String RAM) {

this.CPU = CPU;

this.RAM = RAM;

}

// Setter methods for optional fields

public Builder setStorage(String storage) {

this.storage = storage;

return this;

}

public Builder setGraphicsCard(String graphicsCard) {

this.graphicsCard = graphicsCard;

return this;

}

// Build method to return the final Computer object

public Computer build() {

return new Computer(this);

}

}

// Method to display computer configuration

public void showConfig() {

System.out.println("CPU: " + CPU);

System.out.println("RAM: " + RAM);

System.out.println("Storage: " + (storage != null ? storage : "Not included"));

System.out.println("Graphics Card: " + (graphicsCard != null ? graphicsCard : "Not included"));

}

}

**TestBuilderPattern.java**

public class TestBuilderPattern {

public static void main(String[] args) {

// Building a basic computer

Computer basicComputer = new Computer.Builder("Intel i5", "8GB")

.build();

System.out.println("Basic Computer Configuration:");

basicComputer.showConfig();

System.out.println();

// Building a gaming computer with more options

Computer gamingComputer = new Computer.Builder("AMD Ryzen 7", "16GB")

.setStorage("1TB SSD")

.setGraphicsCard("NVIDIA RTX 3060")

.build();

System.out.println("Gaming Computer Configuration:");

gamingComputer.showConfig();

}

}

**OUTPUT:**

A black screen with white text

AI-generated content may be incorrect.