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**Week-1:**

**Exercise 1: Implementing the Singleton Pattern**

**Input Code:**

**package** Factory;

**class** Computer {

**private** **final** String CPU;

**private** **final** String RAM;

**private** **final** String HardDiskType;

**private** **final** String Monitor;

**private** **final** String OS;

**private** Computer(Builder builder) {

**this**.CPU = builder.CPU;

**this**.RAM = builder.RAM;

**this**.HardDiskType = builder.HardDiskType;

**this**.Monitor = builder.Monitor;

**this**.OS = builder.OS;

}

**public** **static** **class** Builder {

**private** String CPU;

**private** String RAM;

**private** String HardDiskType;

**private** String Monitor;

**private** String OS;

**public** Builder setCPU(String CPU) {

**this**.CPU = CPU;

**return** **this**;

}

**public** Builder setRAM(String RAM) {

**this**.RAM = RAM;

**return** **this**;

}

**public** Builder setHardDiskType(String HardDiskType) {

**this**.HardDiskType = HardDiskType;

**return** **this**;

}

**public** Builder setMonitor(String Monitor) {

**this**.Monitor = Monitor;

**return** **this**;

}

**public** Builder setOS(String OS) {

**this**.OS = OS;

**return** **this**;

}

**public** Computer build() {

**return** **new** Computer(**this**);

}

}

**public** **void** showConfig() {

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

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

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

System.***out***.println("Hard Disk: " + HardDiskType);

System.***out***.println("Monitor: " + (Monitor != **null** ? Monitor : "Not Included"));

System.***out***.println("OS: " + (OS != **null** ? OS : "Not Installed"));

System.***out***.println();

}

}

**public** **class** BuilderPattern {

**public** **static** **void** main(String[] args) {

Computer.Builder gamingPCBuilder = **new** Computer.Builder();

gamingPCBuilder.setCPU("Intel i9");

gamingPCBuilder.setRAM("32GB");

gamingPCBuilder.setHardDiskType("1TB SSD");

gamingPCBuilder.setMonitor("27-inch 4K");

gamingPCBuilder.setOS("Windows 11 Pro");

Computer gamingPC = gamingPCBuilder.build();

Computer.Builder officePCBuilder = **new** Computer.Builder();

officePCBuilder.setCPU("Intel i5");

officePCBuilder.setRAM("16GB");

officePCBuilder.setHardDiskType("512GB SSD");

officePCBuilder.setOS("Windows 10");

Computer officePC = officePCBuilder.build();

gamingPC.showConfig();

officePC.showConfig();

}

}

**Output:**

