

Case Study Title: Hospital Management System

POJO Classes:

1. Patient.java ◦ registerPatient(): Register a new patient
◦ getPatientDetails(): View details
2. Appointment.java ◦ bookAppointment(): Book appointment
◦ cancelAppointment(): Cancel it
3. Billing.java ◦ generateBill(): Generate invoice
◦ sendBill(): Email invoice

Code:

//Patient.java

package com.hospital;

```
public class Patient {  
    public void registerPatient() {  
        System.out.println("Patient registered successfully.");  
    }  
  
    public void getPatientDetails() {  
        System.out.println("Fetching patient details...");  
    }  
}
```

}

//Appointment.java

package com.hospital;

```
public class Appointment {  
    public void bookAppointment() {  
        System.out.println("Appointment booked successfully.");  
    }  
  
    public void cancelAppointment() {  
        System.out.println("Appointment canceled.");  
    }  
}
```

}

//Billing.java

package com.hospital;

```
public class Billing {  
    public void generateBill() {  
        System.out.println("Bill generated successfully.");  
    }  
  
    public void sendBill() {
```

```

        System.out.println("Bill sent via email.");
    }

}

//HospitalService.java
package com.hospital;

public class HospitalService {
    private Patient patient;
    private Appointment appointment;
    private Billing billing;

    // Setters for dependency injection
    public void setPatient(Patient patient) {
        this.patient = patient;
    }

    public void setAppointment(Appointment appointment) {
        this.appointment = appointment;
    }

    public void setBilling(Billing billing) {
        this.billing = billing;
    }

    public void handlePatientRegistration() {
        patient.registerPatient();
        patient.getPatientDetails();
    }

    public void handleAppointment() {
        appointment.bookAppointment();
        appointment.cancelAppointment();
    }

    public void handleBilling() {
        billing.generateBill();
        billing.sendBill();
    }

}

//applicationContext.xml
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="

```

```
http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans.xsd">
```

```
<!-- Bean definitions -->
<bean id="patient" class="com.hospital.Patient" />
<bean id="appointment" class="com.hospital.Appointment" />
<bean id="billing" class="com.hospital.Billing" />

<!-- Service with injected dependencies -->
<bean id="hospitalService" class="com.hospital.HospitalService">
  <property name="patient" ref="patient" />
  <property name="appointment" ref="appointment" />
  <property name="billing" ref="billing" />
</bean>
</beans>
```

```
//pom.xml
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
    http://maven.apache.org/xsd/maven-4.0.0.xsd">
```

```
<modelVersion>4.0.0</modelVersion>
<groupId>com.example</groupId>
<artifactId>hospital-management-xml</artifactId>
<version>1.0-SNAPSHOT</version>
```

```
<dependencies>
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-context</artifactId>
    <version>5.3.33</version>
  </dependency>
</dependencies>
</project>
```

```
//Main.java
```

```
package com.hospital;
```

```
import org.springframework.context.ApplicationContext;
```

```
import org.springframework.context.support.ClassPathXmlApplicationContext;
```

```
public class Main {
```

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

```
    ApplicationContext context = new
```

```
    ClassPathXmlApplicationContext("applicationContext.xml");
```

```
HospitalService service = (HospitalService) context.getBean("hospitalService");

    service.handlePatientRegistration();
    service.handleAppointment();
    service.handleBilling();
}

}
```

Output:

Appointment booked successfully.

Appointment canceled.

Bill generated successfully.

Bill sent via email.