Day 8 Spring Day-wise Assignment

Case Study 1: XML-Based Configuration - Hospital Management System

Scenario

A hospital needs to manage patient registration, appointments, and billing using Spring XML configuration.

Patient.java

java

```java
package com.example.hospital;

public class Patient {
    private String name;
    private int age;

    public void registerPatient(String name, int age) {
        this.name = name;
        this.age = age;
        System.out.println("Registered patient: " + name);
    }

    // Getters and setters
    public String getName() { return name; }
    public void setName(String name) { this.name = name; }
    public int getAge() { return age; }
    public void setAge(int age) { this.age = age; }
}
```

Appointment.java

```java
package com.example.hospital;


public class Appointment {
    private Patient patient;
    private String date;


    public void bookAppointment(String date) {
        this.date = date;
        System.out.println("Appointment booked for " + patient.getName() + " on " + date);
    }


    // Getters and setters
    public Patient getPatient() { return patient; }
    public void setPatient(Patient patient) { this.patient = patient; }
}
```

applicationContext.xml

```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 id="patient" class="com.example.hospital.Patient">
        <property name="name" value="John Doe"/>
        <property name="age" value="30"/>
```

```xml
    </bean>

    <bean id="appointment" class="com.example.hospital.Appointment">
        <property name="patient" ref="patient"/>
        <property name="date" value="2023-12-15"/>
    </bean>
</beans>
```

Billing.java

```java
package com.example.hospital;

public class Billing {
    private Patient patient;
    private double amount;

    public void generateBill() {
        System.out.println("Generated bill for " + patient.getName() + ": $" + amount);
    }

    public void sendBill() {
        System.out.println("Bill sent to " + patient.getName() + " via email");
    }

    // Getters and setters
    public Patient getPatient() { return patient; }
    public void setPatient(Patient patient) { this.patient = patient; }
    public double getAmount() { return amount; }
    public void setAmount(double amount) { this.amount = amount; }
```

}

Main Application

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;


```java
public class Main {

    public static void main(String[] args) {

        ApplicationContext context = new
ClassPathXmlApplicationContext("applicationContext.xml");

        Patient patient = (Patient) context.getBean("patient");

        patient.registerPatient(patient.getName(), patient.getAge());

    }

}
```