Smart Home Lighting System

Description

Objective:

To work with a Spring Core application using annotations, injecting values into the fields, and inheritance concepts.

Concept Explanation:

1. **Injecting values into fields** involves annotating class attributes with @Value or using constructor/setter injection, enabling flexible configuration.

2. **Inheritance** allows for class extension, enabling code reuse and polymorphism, and facilitating the implementation of common behaviors and characteristics.

Concept Implementation:

1. Attributes of the **LEDLighting** and **IncandescentLighting** classes are annotated with **@Value** to inject specific values into their fields.

2. Values for luminosity, energy consumption, and type are injected into the fields of **LEDLighting** and **IncandescentLighting** classes using annotations, facilitating flexible configuration and initialization of lighting systems.

3. The **LEDLighting** and **IncandescentLighting** classes extend the abstract class **LightingSystem**, inheriting its methods and defining their implementations for the **getEfficiencyRating** method, showcasing inheritance in object-oriented programming.

Smart Home Lighting System Application is an application to test LED and Incandescent lighting systems in a smart home setting. They need to analyze the lighting system's performance by injecting an LED or Incandescent system on a runtime basis. As their software consultant, you've been tasked with developing a software system to fulfill their requirements.