**## Dependency Injection**

Dependency Injection is a design pattern where the Spring container automatically provides the required dependencies to a class, instead of the class creating them itself.

**Types of Dependency Injection:**

1. Constructor Injection
2. Setter Injection
3. Field Injection

**## Inversion of Control (IOC) Container**

Inversion of Control (IoC) is a design principle used in object-oriented programming where the control of object creation and dependency management is transferred from the application code to an external framework or container.

**Types of IOC Container:**

1. **BeanFactory**

BeanFactory is the simplest container and is used to create and manage beans.

1. **ApplicationContext**

ApplicationContext is an advanced container that extends BeanFactory and provides additional features.

## **Spring Annotation**

**@Component:**Marks a class as a Spring bean, allowing Spring to automatically detect and manage it during classpath scanning.

**@Autowired:**Automatically injects dependencies into a class.

**@Bean:**Defines a Spring bean explicitly within a configuration class.

**@Configuration:**Indicates that a class contains bean definitions and acts as a source of bean configuration.

**## The Spring framework consists of seven modules which are**

1. **Spring Core :** Provides the **Inversion of Control (IoC) container** and **dependency injection (DI)**.
2. **Spring AOP :** Allows you to separate **cross-cutting concerns** (like logging, security, transactions) from business logic.
3. **Spring Web MVC :** Provides a **Model-View-Controller framework** for web applications.
4. **Spring DAO :** Simplifies **database access** and **exception handling**.(Data Access Object)
5. **Spring ORM :** Integrates Spring with **ORM frameworks** like Hibernate, JPA, or MyBatis.(Object-Relational Mapping)
6. **Spring context :** Provides **application context** features like **internationalization (i18n), event propagation, and resource loading**.
7. **Spring Web flow :** Helps manage **complex web page navigation flows**.

## Approaches of configuration:

1. XML based
2. Java based
3. Annotation based