Spring 🡪

Introduction

Spring Framework 🡪

1. Spring is a framework
2. Spring is also called as framework of framework
3. Spring is also called as dependency Injection framework
4. Spring framework is mostly used to create loosely coupled application.
5. IOC is provided by Spring which helps us to inject object.
6. Spring framework
   1. Spring JDBC
   2. Spring ORM
   3. Spring Security and many more…..
7. Spring has developed Rod Johnson in 2003.
8. Before Spring, this framework was known as Interface21

**Dependency Injection:**

Dependency Injection is a design pattern, Design pattern helps us to develop our application in proper structure and manure.

Note- Spring is taking responsibility of creating objects for us. This mechanism known as IOC .

What is IOC (Inversion of Control) 🡪 It will create object and inject as per requirement.

Shopping Application

UI layer (console is being our UI)

Data Access Layer

Business Logic Layer

Spring Modules:

Servlet

WEB

Spring Web

Spring ORM

Spring JDBC

Data Integration layer

Portlet

Web Socket

OXM

JMS

SpEl

Context

Bean

Core

**Spring Core**

**AOP**

Messaging

Instrumentation

Aspects

Test

**Core** – Core is responsible for all fundamentals of Spring, Core having functionalities like DI, IOC

**Context** – Resource loading, Internationalization, propagation of function, context also play very important role.

**Bean –** POJO / Bean classes for which it will create objects for us.

**SpEl** - It is very useful for graphing object.

**AOP -** Aspect Oriented Programming is used for Cross cutting concern.

**Instrumentation** – It there will be requirement of some classes then this will be taken care by Instrumentation

**Messaging** – If there will be requirement of messaging service in our application then we can go for this module.

**Data Integration Layer**

**Spring JDBC** 🡪 Traditional JDBC is very hectic and tedious but spring JDBC will provides us abstract layer of JDBC which will help us to develop database driven application.

**Spring ORM** 🡪 If our requirement is to implement ORM in our application then instead of using Hibernate we can go with Spring ORM.

**OXM** – object XML we can use this module

**JMS** – for producing messages and consume messages we can use JMS.

**Spring – Web 🡪**

If we will have to implement or develop a web application then we can go for Spring web Module.

**Test 🡪** Whenever we will have to write test cases for testing our application we can integrate testing framework for the same.

**Spring IOC container**

Spring comes with IOC, It is responsible for creating objects for us and inject them as per requirement.

IOC is also responsible for managing lifecycle of objects

Spring IOC is responsible for performing three tasks

1. Create Objects
2. Hold them in memory
3. Inject them as per requirement

For achieving this we will have to follow steps given below:

1. We will have to specify bean class
2. Specify Configuration file.

For doing this we required

**ApplicationContext** 🡪 It is an interface, We also have BeanFactory interface but ApplicationContext is going to inherit Bean factory interface because of that all functionalities of BeanFactory with some additional func. Of its own.

ApplicationContext is an interface so we can’t create object for it in order to load resource. IF I will have to create object for ApplicationContext then I will have to use it’s implemented classes or child classes.

Subclasses of ApplicationContext

1. ClassPathXMLAppicationContext
2. AnnotationConfigApplicationContext
3. FileSystemXMLApplicationContext

ClassPathXMLAppicationContext🡪 It will search for XML configuration file

AnnotationConfigApplicationContext 🡪 When we are going to implement annotation base configuration in our application then we can use AnnotationConfigApplicationContext.

FileSystemXMLApplicationContext 🡪 for XML base configuration in a file then we can use this subclass.