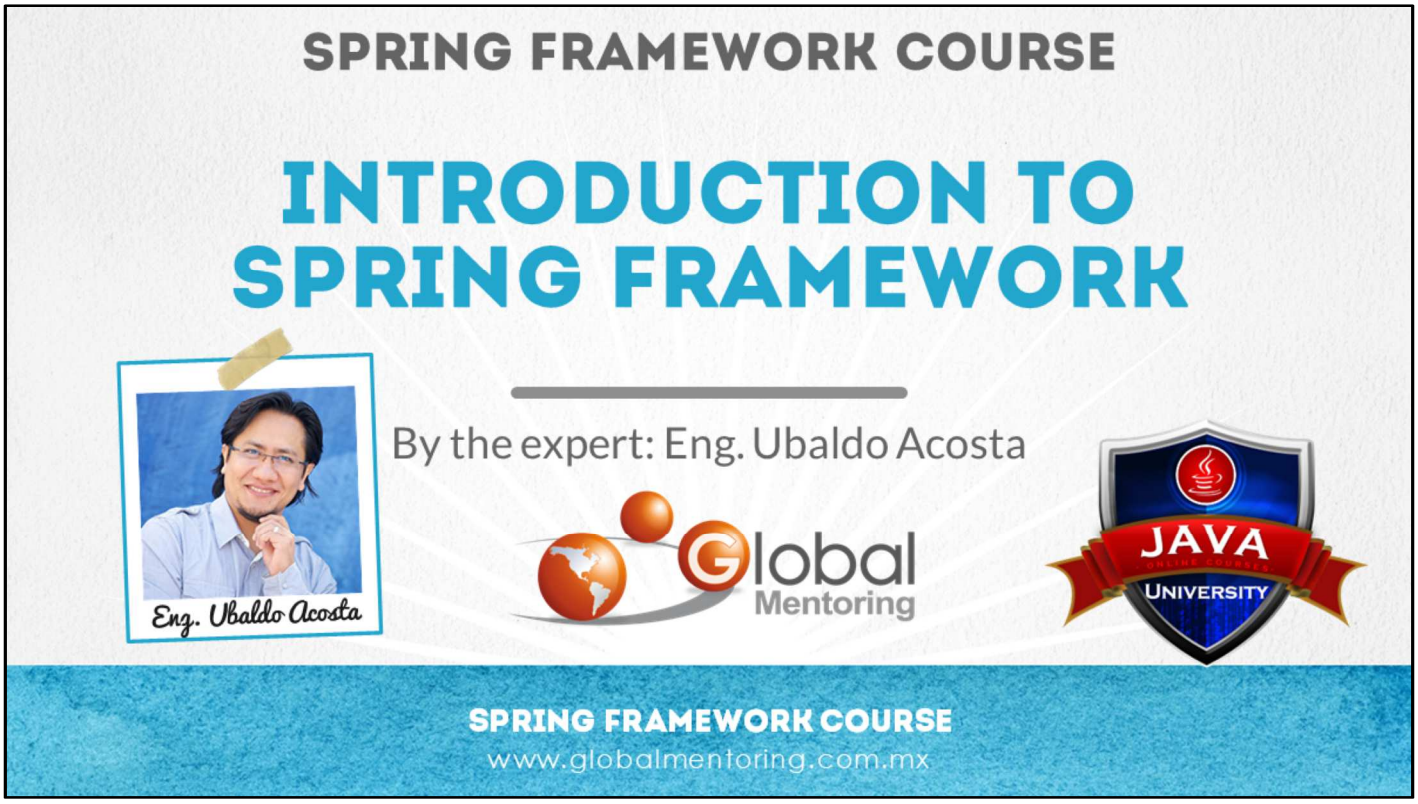
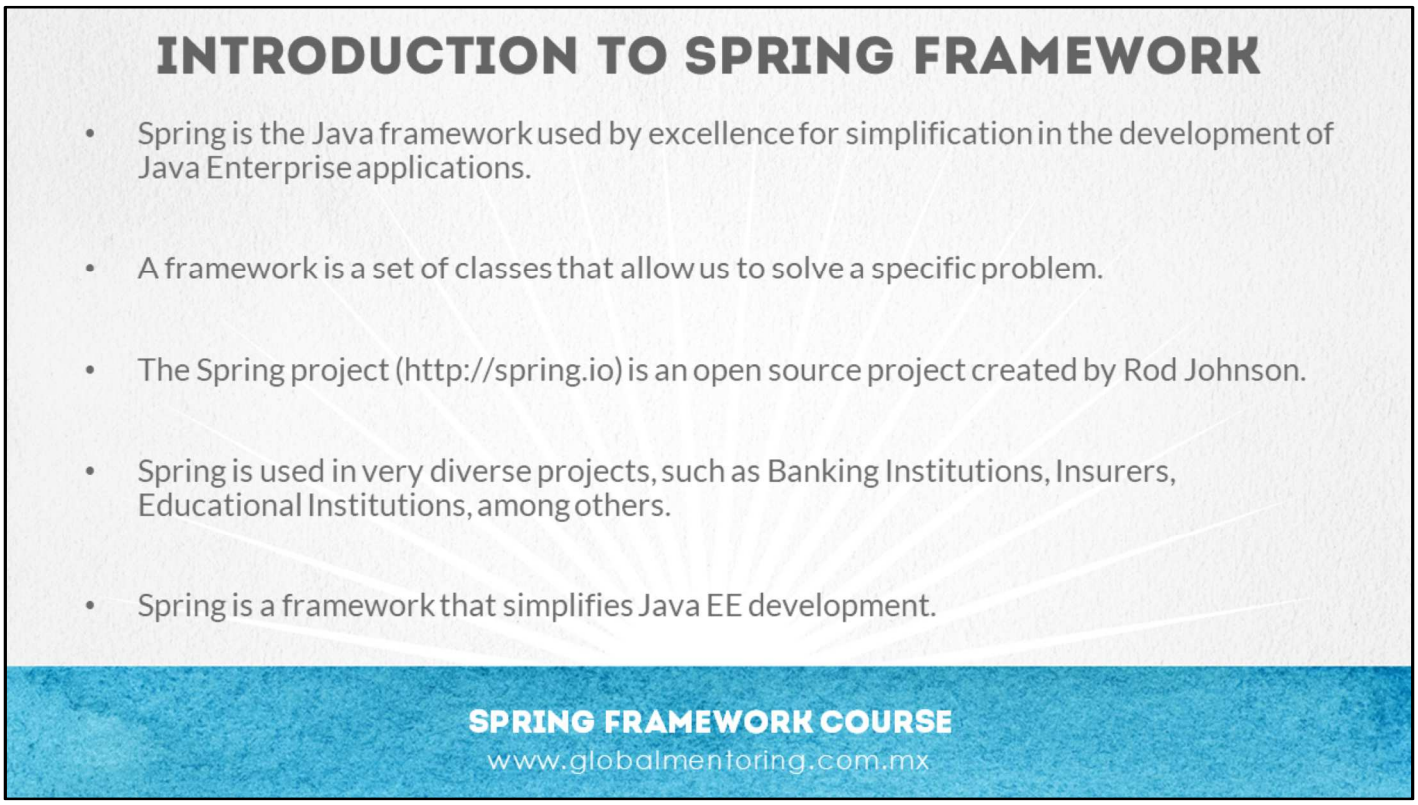


Hello, Ubaldo Acosta greets you. Welcome back to this Spring Framework Course.

In this first lesson we will review an introduction to one of the frameworks that revolutionized Java development, as well as the basic elements that will allow us to understand the Spring Framework role today.

So if you're ready, we will too. Let's start immediately.



- Spring is the Java framework used by excellence for the development of business applications. It is one of the most used frameworks today and it is not coincidence. The goal of Spring is to simplify the development of Java business applications.

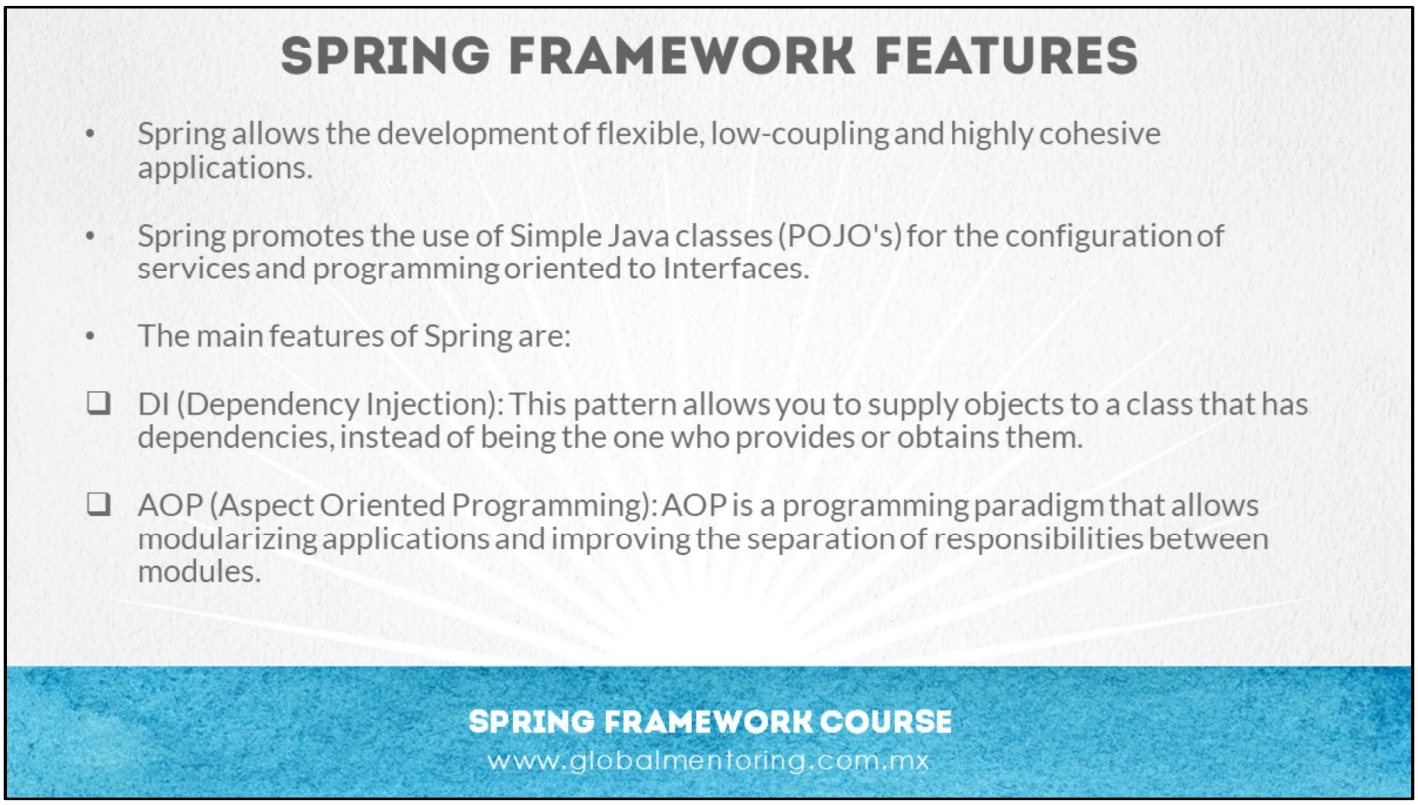
- Broadly speaking, a framework is a set of classes that allow us to solve a specific problem. In the particular case of Spring, it allows us to solve many of the problems that arise when developing applications with JEE technology (Java Enterprise Edition)

- One of the major advantages of Spring, is the modular form in which it was created, allowing to enable / disable the features to be used as required.

- The official page of Spring is http://spring.io where you can find all the projects related to this technology.

- Spring is used in very diverse projects, such as Banking Institutions, Insurance, Educational Institutions and Government, among many other types of projects and companies.

- Spring is a framework that simplifies the development of Java EE applications.



Spring allows the development of flexible, highly cohesive and low coupling applications.

Spring allowed to simplify the JEE development by using Simple Java classes (POJO - Plain Old Java Object) for the configuration of services.

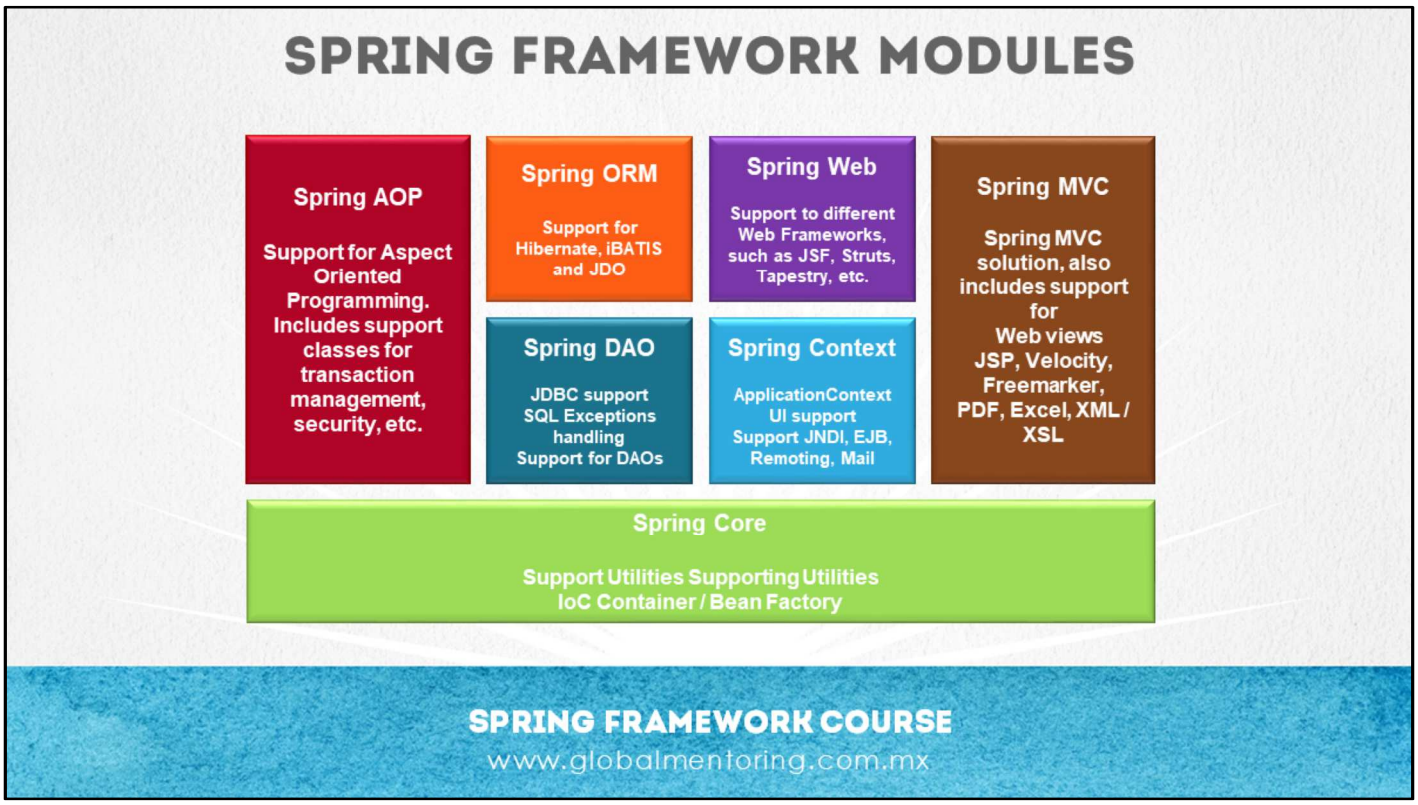
Because many projects show the same tasks to perform again and again, such as Location of Services, Transaction Management, Management of Exceptions, Parameterization of the application, among many others.

Spring allows solving many of these problems in a very simple way. To achieve the above, the framework is based on two fundamental concepts:

- DI (Dependency Injection): This design pattern allows you to supply objects to a class (POJO) that has dependencies, instead of being the one who provides them.

- AOP (Aspect Oriented Programming): AOP is a programming paradigm that allows modularizing applications and improving the separation of responsibilities between modules and / or classes.

The above characteristics are the basis for the creation of lightweight containers. Spring is one of the most complete and popular lightweight containers today.



Spring is composed of different modules, allowing you to select only some or all of them, depending on the nature of the application. In the figure we can see some of the main modules of the Spring Framework. Below we will list several of them:

Spring Core: This module provides the basic functionality of the Spring factory. The main component is BeanFactory, which applies the concept of Inversion of Control (IoC) or also known as Dependency Injection (DI).

Spring Context: This is where the framework configuration is made. It includes the configuration of business services such as JNDI, EJB, Internationalization, validation, among several others.

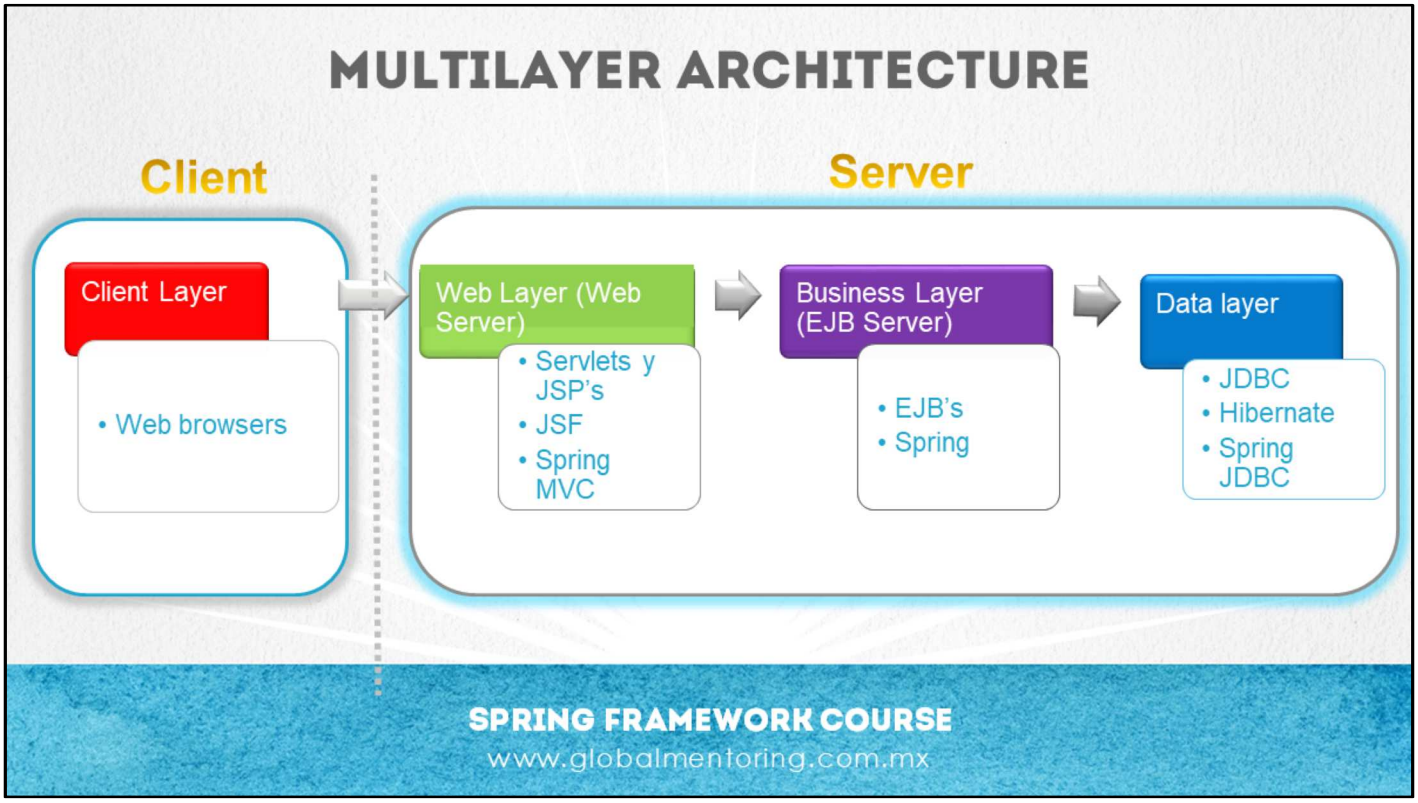
Spring AOP: It allows to apply the concepts of Aspect Oriented Programming (AOP), it also includes support classes for transactional management, security, among several other classes, allowing to uncouple these features from our application.

Spring DAO: Allows to apply concepts of Data Access Object (DAO) data layer through POJOs (Plain Old Java Object), abstracting the complexity, allowing to create a cleaner and simpler JDBC code.

Spring ORM: Allows integration with technologies such as JPA, Hibernate, among others.

Spring Web: Allows development and integration with technologies such as Struts, JSF, among others.

Spring MVC: This module implements the MVC pattern to be used in the presentation layer.



A business application in Java is composed of different layers, each layer has a very specific function. Divide an application into layers has several advantages, such as separation of responsibilities, better maintenance of the application, specialization of programmers in each layer, among many more.

Spring is a framework that solves several problems of different layers, from the presentation layer, the business layer and the data layer. Although the most common is that it is combined with other technologies and Spring remains as the orchestrator of the Service layer.

Next we will mention each one of the layers of a multilayer application.

Client layer: The Client layer is where the client interacts through a Web browser, a mobile client, a desktop application, among others.

Web Layer: the web layer that can reside in a web server, the most basic technologies that we can find in this web server are the JSP's and the Servlets.

Business layer: in this layer we can find technology such as Enterprise Java Beans (EJBs) or frameworks such as Spring.

Data Layer: here we will find technologies such as JDBC, Hibernate, among others. This code will allow us to communicate with our database to read and store information in it.

Spring provides a fairly broad portfolio of solutions, in addition to Spring Core. Here we will mention some of these projects:

Spring Web Flow is built on Spring MVC, with the aim of defining and managing flows between pages within a Web application.

Spring Web Services (Spring-WS) makes it possible to facilitate the creation of Web Services based on the exchange of documents (document driven or contract first).

Spring Security is the security module for Web applications, initially known as ACEGI framework.

Spring Batch is the Spring module that allows us to create batch processes, formed by a sequence of steps.

Spring Social provides connectivity and authorization to social networks such as Facebook, Twitter, Google+, Linkedin, etc.

Spring Mobile is an extension of Spring MVC, with the aim of simplifying the development of mobile Web applications.

Spring Roo allows the rapid development of Java applications.

Among several more.

For more information: https://spring.io/projects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