Spring Boot

1. Spring Boot is a java based framework.
2. Spring boot is use for a faster development and also it reduce the development efforts.
3. Using a Spring Boot you can create a production ready application.
4. Spring Boot provide embedded servers like Tomcat server, Data Base server such as H2 Database.
5. Spring boot is a flexible framework where you can customize as per your requirement.
6. Spring Boot is based on Spring Framework.
7. Spring Boot is majorly used for Full stack application and microservices.
8. Spring framework is divided into multiple module. You can use a module as per you project requirement.
   1. Spring IOC/Core
   2. Spring JDBC
   3. Spring ORM
   4. Spring REST
   5. Spring batch
   6. Spring MVC
   7. Spring Cloud
   8. Spring JMS
   9. Spring Security
9. How to implement Module in spring boot project
   1. Add the dependencies of Spring Module into project.
   2. Configure the model into project using predefine configuration.
   3. Use a Spring APIs to implement the functionality.
10. Spring Documentation

<https://docs.spring.io/spring-framework/docs/current/reference/html/>

<https://docs.spring.io/spring-boot/docs/current/reference/htmlsingle/>

1. Spring boot is a wrapper of spring framework. Spring framework issue such as setup, configuration and dependency management etc. has been resolve in this spring boot.
   1. Spring Boot provides a starter project which contains the required dependency for the modules.
   2. Spring Boot provides the auto configuration feature using which the module configuration will be happened automatically. You can customize the configuration as per your requirement.
   3. Spring provides the embedded tomcat server and H2 server by default.

**Spring Boot Project Creation**

1. Spring CLI (Command Line Interface)
   1. In this approach you have to install the Spring CLI tool to create spring boot application.

<https://docs.spring.io/spring-boot/docs/current/reference/html/cli.html>

1. Spring STS (Spring Tool Suit)
   1. This is the IDE provided by Spring community. This is an extension for eclipse, IntelliJ etc. IDE.

<https://spring.io/tools>

1. Spring Initializer
   1. Is a web application which is use to create a spring boot project. Using this you can create a spring project which will be downloaded as a zip file.

<https://start.spring.io/>



**Create Spring Boot Project**

1. Go to Web Application to create spring boot project.

<https://start.spring.io/>



1. Get the Project Zip file and extract it into specific location.
2. Import the project into eclipse.
   1. Open an Eclipse workspace.
   2. Go To “File” Menu - > Select “Import…” option
   3. You can search for “Maven” option into the wizard of the new window



* 1. Select “Existing Maven Project” option in the list and click on “Next”
  2. Select the extracted folder as a Root Directory (Make sure that select the folder which has pom.xml)
  3. Click on “Finish”

**Spring Core**

**@SpringBootApplication annotation**

1. It is use to define the initial activated in the spring application.
2. This annotation is a combination of 3 annotations
3. @Configuration
   1. It denotes the class is a configuration class which can have the configuration for the application.
   2. Configuration classes will be loaded inside the spring container at the initial stage.
4. @EnableAutoConfiguration
   1. This is use to enable the auto configuration feature of the spring boot.
   2. This configuration will be perform by spring boot internally by looking into the dependencies included into project.
5. @ComponentScan
   1. To scan the spring bean class from the project.
   2. This will be scan and the object will be created and added inside spring container.

**Spring Bean classes**

1. Spring bean classes are the java classes for which spring creates an object and manage the life cycle of the object.
2. This classes can be the build-in or custom classes.
3. To create and maintain the java object spring internally spring use a container which is an ApplicationContext container.
4. To declare any java class as a spring bean class you can use the following annotation on class level.
   1. @Component
   2. @Controller
   3. @RestController
   4. @Service
   5. @Repository
   6. @ControllerAdvice etc.

**Spring Container**

1. It is use to store and manage the spring bean classes.
2. The object will be store inside container and will be available whenever required.
3. In Spring ApplicationContext container is used to manage the object life cycle.
4. You can get the object of any bean class by using getBean() method

Dependency Injection(DI)

1. It is a process in which you can inject the object of one class into another class.
2. To fulfill the HAS-A relation of java you can perform the DI.
3. This process can be achieve manually by providing the Object of another.
4. Also this can be automate by java using @Autowire concept.
5. Autowire concept is use to automate the DI process.