What is Spring boot?

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Sprint boot is a Java-based spring framework used for Rapid Application Development (to build stand-alone microservices). It has extra support of auto-configuration and embedded application server like tomcat, jetty, etc.

Features of Spring Boot that make it different?

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Creates stand-alone spring application with minimal configuration needed.

It has embedded tomcat, jetty which makes it just code and run the application.

Provide production-ready features such as metrics, health checks, and externalized configuration.

Absolutely no requirement for XML configuration.

What are the advantages of using Spring Boot?

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The advantages of Spring Boot are listed below:

Easy to understand and develop spring applications.

Spring Boot is nothing but an existing framework with the addition of an embedded HTTP server and annotation configuration which makes it easier to understand and faster the process of development.

Increases productivity and reduces development time.

Minimum configuration.

We don’t need to write any XML configuration, only a few annotations are required to do the configuration.

What are the Spring Boot key components?

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Below are the four key components of spring-boot:

Spring Boot auto-configuration.

Spring Boot CLI.

Spring Boot starter POMs.

Spring Boot Actuators.

Why Spring Boot over Spring?

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Below are some key points which spring boot offers but spring doesn’t:

Starter POM.

Version Management.

Auto Configuration.

Component Scanning.

Embedded server.

InMemory DB.

Actuators

What is the starter dependency of the Spring boot module?

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Spring boot provides numbers of starter dependency, here are the most commonly used -

Data JPA starter.

Test Starter.

Security starter.

Web starter.

Mail starter.

Thymeleaf starter.

How does Spring Boot works?

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Spring Boot automatically configures your application based on the dependencies you have added to the project by using annotation. The entry point of the spring boot application is the class that contains @SpringBootApplication annotation and the main method.

Spring Boot automatically scans all the components included in the project by using @ComponentScan annotation

What does the @SpringBootApplication annotation do internally?

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The @SpringBootApplication annotation is equivalent to using @Configuration, @EnableAutoConfiguration, and @ComponentScan with their default attributes. Spring Boot enables the developer to use a single annotation instead of using multiple. But, as we know,

Spring provided loosely coupled features that we can use for each annotation as per our project needs.

How does a spring boot application get started?

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Just like any other Java program, a Spring Boot application must have a main method. This method serves as an entry point, which invokes the SpringApplication#run method to bootstrap the application.

@SpringBootApplication

public class MyApplication {

public static void main(String[] args) {

SpringApplication.run(MyApplication.class);

// other statements

}

}

What are starter dependencies?

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Spring boot starter is a maven template that contains a collection of all the relevant transitive dependencies that are needed to start a particular functionality.

Like we need to import spring-boot-starter-web dependency for creating a web application.

<dependency>

<groupId> org.springframework.boot</groupId>

<artifactId> spring-boot-starter-web </artifactId>

</dependency>

What is Spring Initializer?

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Spring Initializer is a web application that helps you to create an initial spring boot project structure and provides a maven or gradle file to build your code. It solves the problem of setting up a framework when you are starting a project from scratch

What is Spring Boot CLI and what are its benefits?

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Spring Boot CLI is a command-line interface that allows you to create a spring-based java application using Groovy.

Example: You don’t need to create getter and setter method or access modifier, return statement. If you use the JDBC template, it automatically loads for you

What Are the Basic Annotations that Spring Boot Offers?

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The primary annotations that Spring Boot offers reside in its org.springframework.boot.autoconfigure and its sub-packages. Here are a couple of basic ones:

@EnableAutoConfiguration – to make Spring Boot look for auto-configuration beans on its classpath and automatically apply them.

@SpringBootApplication – used to denote the main class of a Boot Application. This annotation combines @Configuration, @EnableAutoConfiguration, and @ComponentScan annotations with their default attributes

What is Spring Boot dependency management?

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Spring Boot dependency management is used to manage dependencies and configuration automatically without you specifying the version for any of that dependencies

Can we create a non-web application in Spring Boot?

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Yes, we can create a non-web application by removing the web dependencies from the classpath along with changing the way Spring Boot creates the application context

Is it possible to change the port of the embedded Tomcat server in Spring Boot?

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Yes, it is possible. By using the server.port in the application.properties

Can we override or replace the Embedded tomcat server in Spring Boot?

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Yes, we can replace the Embedded Tomcat server with any server by using the Starter dependency in the pom.xml file. Like you can use spring-boot-starter-jetty as a dependency for using a jetty server in your project.

Can we disable the default web server in the Spring boot application?

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Yes, we can use application.properties to configure the web application type i.e spring.main.web-application-type=none.

How to disable a specific auto-configuration class?

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You can use exclude attribute of @EnableAutoConfiguration if you want auto-configuration not to apply to any specific class.

//use of exclude

@EnableAutoConfiguration(exclude={className})

Explain @RestController annotation in Sprint boot?

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It is a combination of @Controller and @ResponseBody, used for creating a restful controller. It converts the response to JSON or XML. It ensures that data returned by each method will be written straight into the response body instead of returning a template

What is the difference between @RestController and @Controller in Spring Boot?

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@Controller Map of the model object to view or template and make it human readable but @RestController simply returns the object and object data is directly written in HTTP response as JSON or XML

What is the difference between RequestMapping and GetMapping?

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RequestMapping can be used with GET, POST, PUT, and many other request methods using the method attribute on the annotation. Whereas getMapping is only an extension of RequestMapping which helps you to improve on clarity on request.

What is the use of Profiles in spring boot?

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While developing the application we deal with multiple environments such as dev, QA, Prod, and each environment requires a different configuration. For eg., we might be using an embedded H2 database for dev but for prod, we might have proprietary Oracle or DB2. Even if DBMS is the same across the environment, the URLs will be different.

To make this easy and clean, Spring has the provision of Profiles to keep the separate configuration of environments.

Ex:spring.profiles.active=dev

What is Spring Actuator? What are its advantages?

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An actuator is an additional feature of Spring that helps you to monitor and manage your application when you push it to production. These actuators include auditing, health, CPU usage, HTTP hits, and metric gathering, and many more that are automatically applied to your application

To enable the spring actuator feature, we need to add the dependency of “spring-boot-starter-actuator” in pom.xml.

<dependency>

<groupId> org.springframework.boot</groupId>

<artifactId> spring-boot-starter-actuator </artifactId>

</dependency>

Actuators provide below pre-defined endpoints to monitor our application -

Health

Info

Beans

Mappings

Configprops

Httptrace

Heapdump

Threaddump

Shutdown

How to enable debugging log in the spring boot application?

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Debugging logs can be enabled in three ways -

We can start the application with --debug switch.

We can set the logging.level.root=debug property in application.property file.

We can set the logging level of the root logger to debug in the supplied logging configuration file

Where do we define properties in the Spring Boot application?

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You can define both application and Spring boot-related properties into a file called application.properties. You can create this file manually or use Spring Initializer to create this file. You don’t need to do any special configuration to instruct Spring Boot to load this file, If it exists in classpath

then spring boot automatically loads it and configure itself and the application code accordingly

What is dependency Injection?

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The process of injecting dependent bean objects into target bean objects is called dependency injection.

Setter Injection: The IOC container will inject the dependent bean object into the target bean object by calling the setter method.

Constructor Injection: The IOC container will inject the dependent bean object into the target bean object by calling the target bean constructor.

Field Injection: The IOC container will inject the dependent bean object into the target bean object by Reflection API

What is an IOC container?

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IoC Container is a framework for implementing automatic dependency injection. It manages object creation and its life-time and also injects dependencies into the class

What is @PathVariable?

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@PathVariable annotation helps you to extract information from the URI directly.

What is devtools in spring boot?

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Spring boot devtools helpss you to increase the productivity of the developer so you don't require to redeploy your application every time you make the changes. It allows the developer to reload changes without the need of restarting of the server.

DispacherServlet?

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.is basically the front controller in the spring MVC application as it loads the spring bean configuration file and initializes all the beans that have bean configured

.if annotations are enabled it also scans the packages to configure any bean annotated with @Component, @Controller, @Repository, @Service

Spring vs Spring Boot

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Spring

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A web application framework based on Java

Provides tools and libraries to create customized web applications

Spring is more complex than Spring Boot

Takes an unopinionated view

Spring Boot

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A module of Spring

Used to create a Spring application project which can just run/ execute

Spring Boot is less complex than the Spring framework

Takes an opinionated view of a platform

Explain what is thymeleaf and how to use thymeleaf?

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Thymeleaf is a server-side Java template engine used for web applications. It aims to bring natural template for your web application and can integrate well with Spring Framework and HTML5 Java web applications. To use Thymeleaf, you need to add the following code in the pom.xml file:

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-thymeleaf</artifactId>

</dependency>

Explain Spring Data.

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Spring Data aims to make it easy for the developers to use relational and non-relational databases, cloud-based data services, and other data access technologies. So, basically, it makes it easy for data access and still retains the underlying data