

Top 50 Spring Boot Interview Questions That Are A Must

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Sahiti Kappagantula

Are you thinking of pursuing your career as a [Java Developer](#)? Are you searching for an appropriate QnA set to prepare for your interviews? Here is an article on **Spring** Boot Interview Questions which discusses the top 50 questions with proper explanation and examples. It will definitely help you to ace the interviews.

Since its release, the **Spring** Boot has continued to bloom in the market. Spring Boot community is continuously coming with new ways to make the process of building applications easier. Today, its one of the most used technology with [Java to create web applications](#).

In this Spring Boot interview questions' article, I have collected the most frequently asked questions by interviewers. These questions are collected after consulting with experts. In case you have attended any Spring Boot interview in the recent past, do paste those Spring Boot interview questions in the comments section and we'll answer them ASAP. You can also comment below if you have any questions in your mind, which you might face in your interviews.

Spring Boot Interview Questions

Q1. [Spring](#) vs Spring Boot

Spring	Spring Boot
A web application framework based on Java	A module of Spring
Provides tools and libraries to create customized web applications	Used to create a Spring application project which can just run/execute
Spring is more complex than Spring Boot	Spring Boot is less complex than the Spring framework
Takes an unopinionated view	Takes an opinionated view of a platform

Q2. What is Spring Boot and mention the need for it?

Spring Boot is a Spring module which aims to simplify the use of the Spring framework for Java development. It is used to create stand-alone Spring-based applications which you can just run. So, it basically removes a lot of configurations and dependencies. Aiming at the Rapid Application Development, Spring Boot framework comes with the auto-dependency resolution, embedded HTTP servers, auto-configuration, management endpoints, and [Spring Boot CLI](#).

So, if you ask me why should anybody use Spring Boot, then I would say, Spring Boot not only improves productivity but also provides a lot of conveniences to write your own business logic.

Q3. Mention the advantages of Spring Boot

The advantages of Spring Boot are as follows:



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- Provides auto-configuration to load a set of default configuration for a quick start of the application
- Creates stand-alone applications with a range of non-functional features that are common to large classes of projects
- It comes with embedded tomcat, servlet containers jetty to avoid the usage of WAR files
- Spring Boot provides an opinionated view to reduce the developer effort and simplify maven configurations
- Provides CLI tool to develop and test applications
- Comes with Spring Boot starters to ensure dependency management and also provides various security metrics
- Consists of a wide range of APIs for monitoring and managing applications in dev and prod.



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5. Spring Actuator – This feature provides help while running Spring Boot applications.
6. Logging and Security – The logging and security feature of Spring Boot, ensures that all the applications made using Spring Boot are properly secured without any hassle.

Q5. Explain how to create Spring Boot application using Maven

Well, there are various approaches to [create a Spring Boot application](#) using maven, but if I have to name a few, then following are the ways to create a Spring Boot project/ application using [maven](#):

- Spring Boot CLI
- Spring Starter Project Wizard
- Spring Initializr
- Spring Maven Project

Q6. Mention the possible sources of external configuration

There is no doubt in the fact that Spring Boot allows the developers to run the same application in different environments. Well, this is done with the support it provides for external configuration. It uses environment variables, properties files, command-line arguments, YAML files, and system properties to mention the required configuration properties. Also, the @value annotation is used to gain access to the properties. So, the most possible sources of external configuration are as follows:

- **Application Properties** – By default, Spring Boot searches for the application properties file or its YAML file in the current directory, classpath root or config directory to load the properties.
- **Command-line properties** – Spring Boot provides command-line arguments and converts these arguments to properties. Then it adds them to the set of environment properties.
- **Profile-specific properties** – These properties are loaded from the application-{profile}.properties file or its YAML file. This file resides in the same location as that of the non-specific property files and the {profile} placeholder refers to an active profile.

Q7. Can you explain what happens in the background when a Spring Boot Application is “Run as Java Application”?

When a Spring Boot application is executed as “Run as Java application”, then it automatically launches up the tomcat server as soon as it sees, that you are developing a web application.

Q8. What are the Spring Boot starters and what are available the starters?

Spring Boot starters are a set of convenient dependency management providers which can be used in the application to enable dependencies. These starters, make development easy and rapid. All the available starters come under the org.springframework.boot group. Few of the popular starters are as follows:



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- *spring-boot-starter*: – This is the core starter and includes logging, auto-configuration support, and YAML.
- *spring-boot-starter-jdbc* – This starter is used for HikariCP connection pool with JDBC
- *spring-boot-starter-web* – Is the starter for building web applications, including RESTful, applications using Spring MVC
- *spring-boot-starter-data-jpa* – Is the starter to use Spring Data JPA with Hibernate
- *spring-boot-starter-security* – Is the starter used for Spring Security
- *spring-boot-starter-aop*: This starter is used for aspect-oriented programming with AspectJ and Spring AOP
- *spring-boot-starter-test*: Is the starter for testing Spring Boot applications

Q9. Explain Spring Actuator and its advantages

Spring Actuator is a cool feature of Spring Boot with the help of which you can see what is happening inside a running application. So, whenever you want to debug your application, and need to analyze the logs you need to understand what is happening in the application right? In such a scenario, the Spring Actuator provides easy access to features such as identifying beans, CPU usage, etc. The Spring Actuator provides a very easy way to access the production-ready REST points and fetch all kinds of information from the web. These points are secured using Spring Security's content negotiation strategy.

Q10. What is Spring Boot dependency management?

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

Q11. Mention the minimum requirements for a Spring boot System

Spring Boot 2.1.7.RELEASE requires

- Java 8 +
- Spring Framework 5.1.9 +

Explicit build support

- Maven 3.3+
- Gradle 4.4+

Servlet Container Support

- Tomcat 9.0 – Servlet Version 4.0
- Jetty 9.4 – Servlet Version 3.1
- Undertow 2.0 – Servlet Version 4.0

Q12. 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:

```
1 <dependency>
2 <groupId>org.springframework.boot</groupId>
3 <artifactId>spring-boot-starter-thymeleaf</artifactId>
4 </dependency>
```



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```
1 <dependency>
2   <groupId>org.springframework.boot</groupId>
3   <artifactId>spring-boot-devtools</artifactId>
4 </dependency>
```

Q15. Mention the steps to create a Spring Boot project using Spring Initializr

Spring Initializr is a web tool provided by Spring. With the help of this tool, you can create Spring Boot projects by just providing project details. The following steps need to be followed to create a Spring Boot project using Spring Initializr:

- Choose the maven project and the required dependencies. Then, fill the other required details like Group, Artifact, and then click on Generate Project.
- Once the project is downloaded, extract the project onto your system
- Next, you have to import this project using the import option on the Spring Tool Suite IDE
 - While importing the project, remember that you have to choose the project type to be Maven and the source project should contain the pom.xml file.

Once, all the above steps are followed you will see that the Spring Boot project is created with all the required dependencies.

Q16. Mention the steps to connect Spring Boot application to a database using JDBC

Spring Boot starter projects provide the required libraries to connect the application with JDBC. So, for example, if you just have to create an application and connect it with [MySQL](#) database, you can follow the below steps:

Step 1: Create a database in MySQL

```
1 | CREATE DATABASE example;
```

Step 2: Then you have to create a table inside this database.

```
1 | CREATE TABLE customers(customerid INT PRIMARY KEY NOT NULL AUTO_INCREMENT, customername VARCHAR
```

Step 3: Now, create a Spring Boot project and provide the required details

Step 4: Add the JDBC, MySQL and web dependencies.

Step 5: Once the project is created, you have to configure the database into application properties

```
1 | spring.datasource.url=jdbc:mysql://localhost:3306/example
2 | spring.datasource.username=root
3 | spring.datasource.password=edureka
4 | spring.jpa.hibernate.ddl-auto=create-drop
```

Step 6: The main application.java class should have the following code:

```
1 | package com.edureka;
2 | import org.springframework.boot.SpringApplication;
3 | import org.springframework.boot.autoconfigure.SpringBootApplication;
4 | @SpringBootApplication
5 | public class SampleApplication {
6 |     public static void main(String[] args) {
7 |         SpringApplication.run(SampleApplication.class, args);
8 |     }
9 | }
```

Step 7: Next, you have to create a controller to handle the HTTP requests, by mentioning the following code:



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Step 9: Next, open the URL (localhost:8080/insert), and you will see the output as Data Entry Successful. You can also go forward and check if the data is entered into the table.

Q17. How to enable HTTP/2 support in Spring Boot

You can enable the HTTP/2 support in Spring Boot by: `server.http2.enabled=true`

Q18. What are the @RequestMapping and @RestController annotation in Spring Boot used for?

@RequestMapping	@RestController
This annotation is used to provide the routing information and tells to Spring that any HTTP request must be mapped to the respective method.	This annotation is used to add the @ResponseBody and @Controller annotation to the class
To use this annotation, you have to import org.springframework.web.	To use this annotation, you have to import org.springframework.web.
bind.annotation.RequestMapping;	bind.annotation.RestController;

Example: Consider you have a method example() which should map with /example URL.

```
1 package com.edureka;
2 import org.springframework.web.bind.annotation.RequestMapping;
3 import org.springframework.web.bind.annotation.RestController;
4 @RestController
5 public class SampleController {
6     @RequestMapping("/example")
7     public String example(){
8         return"Welcome To Edureka";
9     }
10 }
```

Q19. What is Spring Boot CLI and how to execute the Spring Boot project using boot CLI?

Spring Boot CLI is a tool supported by the official [Spring Framework](#). The steps to execute a Spring Boot project are as follows:

- Download the CLI tool from the official site and extract the zip file. The bin folder present in the Spring setup is used to execute the Spring Boot application.
- Since Spring Boot CLI executes groovy files, you need to create a groovy file for Spring Boot application. So, to do that, open terminal and change the current directory to the bin folder. Now, open a groovy file (for example Sample.groovy)
- In this file create a controller as follows:

```
@RestController public class Sample {
    @RequestMapping("/example")
    String index(){
<h1>"Welcome To Edureka"</h1>;
    } }
```

- Then execute the groovy file by mentioning:

```
1 | ./spring run Sample.groovy;
```

Once, the project is executed go to the URL(localhost:8080:/example) and you will see the output as **Welcome To Edureka**

Q20. Mention the differences between JPA and [Hibernate](#)

JPA	Hibernate
JPA is a Data Access Abstraction used to reduce the amount of boilerplate code	Hibernate is an implementation of Java Persistence API and offers benefits of loose coupling

Q21. How can we create a custom endpoint in Spring Boot Actuator?



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controllers, etc.

To disable the auto-configuration property, you have to exclude attribute of @EnableAutoConfiguration, in the scenario where you do not want it to be applied.

```
1 | @EnableAutoConfiguration(exclude={DataSourceAutoConfiguration.class})
```

If the class is not on the classpath, then to exclude the auto-configuration, you have to mention the following code:

```
1 | @EnableAutoConfiguration(excludeName={Sample.class})
```

Apart from this, Spring Boot also provides the facility to exclude list of auto-configuration classes by using the `spring.autoconfigure.exclude` property. You can go forward, and add it either in the application.properties or add multiple classes with comma-separated.

Q24. What are the differences between @SpringBootApplication and @EnableAutoConfiguration annotation?

@SpringBootApplication	@EnableAutoConfiguration
Used in the main class or bootstrap class	Used to enable auto-configuration and component scanning in your project
It is a combination of @Configuration, @ComponentScan and @EnableAutoConfiguration annotations.	It is a combination of @Configuration and @ComponentScan annotations

Q25. What are the steps to deploy Spring Boot web applications as JAR and WAR files?

To deploy a Spring Boot web application, you just have to add the following plugin in the pom.xml file:

```
1 | <plugin>
2 |   <groupId>org.springframework.boot</groupId>
3 |   <artifactId>spring-boot-maven-plugin</artifactId>
4 | </plugin>
```

By using the above plugin, you will get a JAR executing the package phase. This JAR will contain all the necessary libraries and dependencies required. It will also contain an embedded server. So, you can basically run the application like an ordinary JAR file.

Note: The packaging element in the pom.xml file must be set to **jar** to build a JAR file as below:

```
1 | <packaging>jar</packaging>
```

Similarly, if you want to build a WAR file, then you will mention

```
1 | <packaging>war</packaging>
```

Q.26 Can you give an example for ReadOnly as true in Transaction management?

Example for ReadOnly as TRUE in transaction management could be as follows:

Consider a scenario, where you have to read data from the database. For example, let us say you have a customer database, and you want to read the customer details such as customerID, and customername. To do that, you will set **read-only on the transaction** as we do not want to check for the changes in the entities.

Q27. Can you explain how to deploy to a different server with Spring Boot?

To deploy a different server with Spring Boot, follow the below steps:

- Generate a WAR from the project
- Then, deploy the WAR file onto your favorite server

Note: The steps to deploy the WAR file on the server is dependent on the server you choose.

Q28: What is the best way to expose custom application configuration with Spring Boot?



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```
1 | example.number: 100
2 | example.value: true
3 | example.message: Dynamic Message
```

Q29. Can we create a non-web application in Spring Boot?

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.

Q 30. What are the steps to connect an external database like MySQL or Oracle?

To connect an external database, you have to follow the below steps:

- Start by adding the dependency for MySQL Connector to pom.xml
- Then remove H2 Dependency from pom.xml
- Now, set up your MySQL database and configure your connection to the MySQL database
- Restart your project

Q31. Mention the advantages of the YAML file than Properties file and the different ways to load YAML file in Spring boot

The advantages of the YAML file than a properties file is that the data is stored in a hierarchical format. So, it becomes very easy for the developers to debug if there is an issue. The SpringApplication class supports the YAML file as an alternative to properties whenever you use the SnakeYAML library on your classpath. The different ways to load a YAML file in Spring Boot is as follows:

- Use YamlMapFactoryBean to load YAML as a Map
- Use YamlPropertiesFactoryBean to load YAML as Properties

Q32. How is Hibernate chosen as the default implementation for JPA without any configuration?

When we use the Spring Boot Auto Configuration, automatically the spring-**boot-starter-data-jpa** dependency gets added to the pom.xml file. Now, since this dependency has a transitive dependency on JPA and Hibernate, Spring Boot automatically auto-configures Hibernate as the default implementation for JPA, whenever it sees Hibernate in the classpath.

Q33. What do you understand by Spring Data REST?

Spring Data REST is used to expose the RESTful resources around Spring Data repositories. Consider the following example:

```
1 | @RepositoryRestResource(collectionResourceRel = "sample", path = "sample")
2 | public interface SampleRepository
3 |     extends CustomerRepository<sample, Long> {
```

Now, to expose the REST services, you can use the POST method in the following way:

```
1 | {
2 |   "customername": "Rohit"
3 | }
```

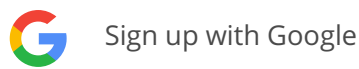
Response Content

```
1 | {
2 |   "customername": "Rohit"
3 |   "_links": {
4 |     "self": {
5 |       "href": "<a href='http://localhost:8080/sample/1'>http://localhost:8080/sample/1</a>"
6 |     },
7 |     "sample": {
8 |       "href": "<a href='http://localhost:8080/sample/1'>http://localhost:8080/sample/1</a>"
9 |     }
10 |   }
}
```

Observe that the response content contains the href of the newly created resource.



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```
1 | @RepositoryRestResource(collectionResourceRel = "sample", path = "sample")
2 | public interface SampleRepository extends
3 | PagingAndSortingRepository<Sample, Long>
```

- path – This section is used to mention the segment under which the resource is to be exported.
- collectionResourceRel – This value is used to generate links to the collection resource.

Q37. Explain how to register a custom auto-configuration.

In order to register an auto-configuration class, you have to mention the fully-qualified name under the @EnableAutoConfiguration key META-INF/spring. factories file. Also, if we build the with maven, then this file should be placed in the resources/META-INF directory.

Q38. How do you Configure Log4j for logging?

Since Spring Boot supports Log4j2 for logging a configuration, you have to exclude Logback and include Log4j2 for logging. This can be only done if you are using the starters project.

Q39. Mention the differences between WAR and embedded containers

WAR	Embedded Containers
WAR benefits a considerable measure from Spring Boot	Only one component of Spring Boot and is utilized during improvements

Q40. What do you think is the need for Profiles?

Profiles are used to provide a way to segregate the different parts of the application configuration and make it available for various environments. So, basically, any @Component or a @Configuration can be marked with a @Profile to limit as it is loaded. Consider you have multiple environments,

- Dev
- QA
- Stage
- Production

Now, let’s say, you want to have different application configuration in each of the environments, you can use profiles to have different application configurations for different environments. So, basically, Spring and Spring Boot provide features through which you can specify:

- The active profile for a specific environment
- The configuration of various environments for various profiles.

Q41. What are the steps to add a custom JS code with Spring Boot?

The steps to add a custom JS code with Spring Boot are as follows:

- Now, create a folder and name it **static** under the resources folder
- In this folder, you can put the static content in that folder

Note: Just in case, the browser throws an unauthorized error, you either disable the security or search for the password in the log file, and eventually pass it in the request header.

Q42. How to instruct an auto-configuration to back off when a bean exists?

To instruct an auto-configuration class to back off when a bean exists, you have to use the @ConditionalOnMissingBean annotation. The attributes of this annotation are as follows:

- **value:** This attribute stores the type of beans to be checked
- **name:** This attribute stores the name of beans to be checked



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The following code snippet can be added to add the dependency:

```
1 <dependency>
2   <groupId>com.h2database</groupId>
3   <artifactId>h2</artifactId>
4   <scope>runtime</scope>
5 </dependency>
```

Q45. What is the way to use profiles to configure the environment-specific configuration with Spring Boot?

Since it is a known fact that a Profile is nothing but a key to identify an environment lets consider the following two profiles in the example:

- dev
- prod
- Consider the following properties present in the application properties file:

example.number: 100

example.value: true

example.message: Dynamic Message

Now, say you want to customize the application.properties for dev profile, then you need to create a file with name application-dev.properties and override the properties that you want to customize. You can mention the following code:

```
example.message: Dynamic Message in Dev
```

Similarly, if you want to customize the application.properties for prod profile, then you can mention the following code snippet:

```
example.message: Dynamic Message in Prod
```

Once you are done with the profile-specific configuration, you have to set the active profile in an environment. To do that, either you can

- Use `-Dspring.profiles.active=prod` in arguments
- Use `spring.profiles.active=prod` in application.properties file

Q46. Mention the dependencies needed to start up a JPA Application and connect to in-memory database H2 with Spring Boot?

The dependencies are needed to start up a JPA Application and connect to in-memory database H2 with Spring Boot

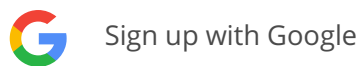
- web starter
- h2
- data JPA starter
- To include the dependencies refer to the following code:

```
1 <dependency>
2   <groupId>org.springframework.boot</groupId>
3   <artifactId>spring-boot-starter-web</artifactId>
4 </dependency>
5 <dependency>
6   <groupId>com.h2database</groupId>
7   <artifactId>h2</artifactId>
8   <scope>runtime</scope>
9 </dependency>
10 <dependency>
11   <groupId>org.springframework.boot</groupId>
12   <artifactId>spring-boot-starter-data-jpa</artifactId>
13 </dependency>
```

Q47. What do you understand by Spring Boot supports relaxed binding?



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dependencies of the application. So, the database connection information, and automatically connecting the database to H2 is done by the auto-configuration property.

Q49. What is the name of the default H2 database configured by Spring Boot?

The name of the default H2 database is **testdb**. Refer below:

```
spring.datasource.name=testdb # Name of the datasource.
```

Note: Just incase if you are using H2 in-memory database, then exactly that is the name of Spring Boot which is used to setup your H2 database.

Q50. Do you think, you can use jetty instead of tomcat in spring-boot-starter-web?

Yes, we can use jetty instead of tomcat in spring-boot-starter-web, by removing the existing dependency and including the following:

```
1 <dependency>
2   <groupId>org.springframework.boot</groupId>
3   <artifactId>spring-boot-starter-web</artifactId>
4   <exclusions>
5     <exclusion>
6       <groupId>org.springframework.boot</groupId>
7       <artifactId>spring-boot-starter-tomcat</artifactId>
8     </exclusion>
9   </exclusions>
10 </dependency>
11 <dependency>
12   <groupId>org.springframework.boot</groupId>
13   <artifactId>spring-boot-starter-jetty</artifactId>
14 </dependency>
```

With this, we come to an end to this article on Spring Boot Interview Questions. I hope this set of Spring Boot Interview Questions and Answers will help you in preparing for your interviews. All the best! *If you want to learn Spring and wish to use it while developing Java applications, then check out the [Spring Framework Certification Training](#) by Edureka, a trusted online learning company with a network of more than 250,000 satisfied learners spread across the globe.*

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