Spring Boot Guide

Spring Boot for Beginners

Curriculum

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WHO IS THIS COURSE FOR?

- Developers
- Java Programmers
- Web Application Developers
- Java Enterprise Applications Devs
- Students

This course caters to a diverse range of learners, from novices exploring the world of programming to seasoned coders seeking to enhance their skills.

WHAT'S NEXT?

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700 Lessons

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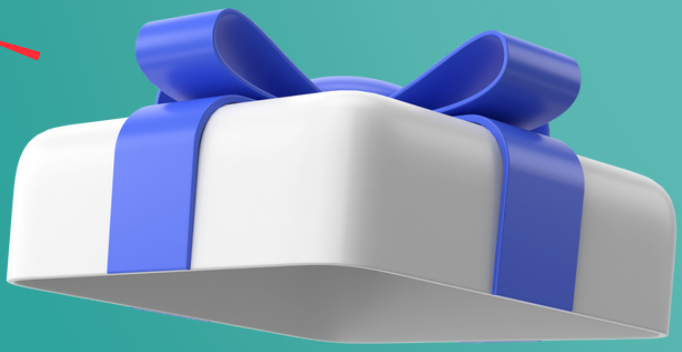

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2 hrs
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WELCOME

Welcome, aspiring Spring Boot developers!

Are you ready to unlock the full potential of Java and dive into the world of Spring Boot? If you have a passion for building robust and efficient web applications, then you're in the right place. Spring Boot offers exciting opportunities for developers to streamline their development process, increase productivity, and create scalable applications with ease.

In this comprehensive guide, we will take you on a journey through the ins and outs of Spring Boot. Whether you're a beginner or an experienced developer looking to expand your skill set, this guide will provide you with a solid foundation in Spring Boot and equip you with the tools and knowledge to build modern web applications.

Throughout this guide, you will explore various topics such as creating RESTful APIs, working with databases, handling error and exception handling, and much more. Each chapter will provide you with an overview of the topic, dive into the specific skills you will acquire, and give you a taste of what the course has to offer.

So, get ready to embark on this exciting learning adventure. By the end of this guide, you will have a clear understanding of Spring Boot and be well-prepared to tackle real-world projects. Let's unleash the power of Spring Boot and take your Java skills to new heights. Let's get started!

Nelson

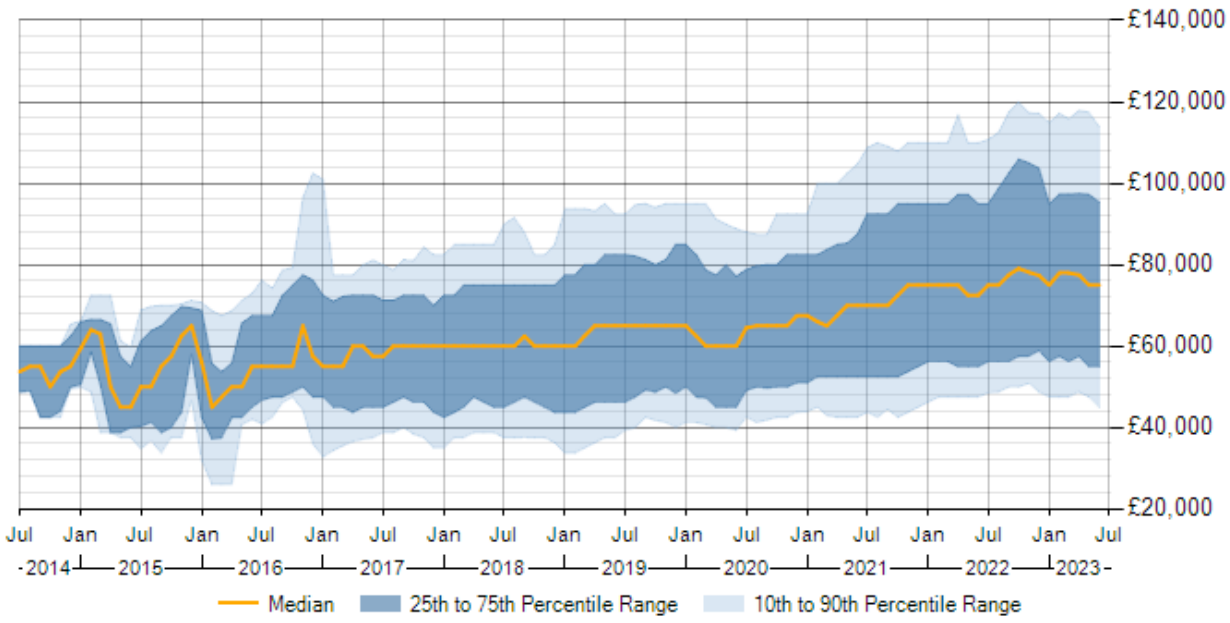
INTRODUCTION

Welcome to the world of Spring Boot! In this chapter, we will dive into the fundamentals of Spring Boot and explore its capabilities in building powerful and efficient Java applications. Spring Boot has revolutionized the way developers approach Java development by providing an opinionated framework that simplifies the setup and configuration process. Whether you are new to Spring or an experienced developer, this chapter will serve as a solid foundation for understanding Spring Boot and its benefits.

SKILLS UPON COMPLETION

- **Intro to Spring Boot**: Gain a clear understanding of what Spring Boot is and how it simplifies the development process by eliminating the need for manual configuration and boilerplate code.
- **What Spring Boot Offers**: Explore the wide range of features and benefits that Spring Boot brings to the table, such as auto-configuration, embedded servers, and production-ready monitoring and management.

AVG. SPRING BOOT DEVELOPER SALARY IN UK:



SETUP

In the Setup chapter of our Java and Spring Boot course, we will guide you through the initial setup required to kickstart your journey into Java and Spring Boot development. This chapter is designed to help you explore the essential tools and configurations needed to set up your Java and Spring Boot development environment.

By the end of this chapter, you will have a fully functional development environment with IntelliJ and all the necessary tools set up, ready to embark on your Java and Spring Boot coding journey. So let's dive in and get ready to unleash the power of Java and Spring Boot!

SKILLS UPON COMPLETION

- **IntelliJ**: Learn how to set up and configure IntelliJ, a popular Integrated Development Environment (IDE), for Java and Spring Boot development. We'll explore the features and tools provided by IntelliJ to enhance your coding experience.
- **JDK**: Understand the importance of the Java Development Kit (JDK) and how to install and configure it on your machine. We'll cover the JDK versions, environment variables, and the necessary steps to ensure you have the right JDK setup for your Java projects.
- **POM**: Dive into the Project Object Model (POM) in Maven, a powerful tool for managing dependencies and building Java projects. We'll explore the structure and content of the POM file and learn how to configure dependencies and plugins for your Spring Boot projects.

DID YOU KNOW?

JDK Version

Did you know that there are different versions of the JDK available, each with its own set of features and compatibility? It's important to choose the right JDK version based on your project's requirements and the Java language features you plan to utilize. Staying up-to-date with the latest JDK releases also ensures you have access to the latest enhancements and security updates.

BUILDING APPLICATION

In the Building Application chapter of our comprehensive Java and Spring Boot course, we embark on an important step in your journey as a Java developer. Here, we delve into the practical aspects of building applications using the powerful Spring Boot framework.

Throughout this chapter, we will equip you with the essential skills and knowledge needed to construct robust and scalable applications. You will be guided through the process of setting up your development environment, creating a Spring Boot project, and implementing key features that serve as the foundation of modern applications.

SKILLS UPON COMPLETION

- **Your first Spring Boot Application**: Set up your development environment and create a Spring Boot project.
- **Embedded Web Server**: Explore the benefits of using an embedded web server in a Spring Boot application.
- **Configuring Embedded Web Server**: Fine-tune the configuration of the embedded web server.
- **Your first API**: Define RESTful endpoints and handle HTTP requests and responses.
- **@SpringBootApplication**: Understand the purpose and usage of the @SpringBootApplication annotation.

DID YOU KNOW?

@SpringBootApplication

The @SpringBootApplication annotation is the entry point and configuration class for a Spring Boot application. It combines three annotations: @Configuration, @EnableAutoConfiguration, @ComponentScan and enables component scanning, automatic configuration, and bean definition. It simplifies the process of bootstrapping your Spring Boot application.

MVC AND JSON

In this chapter, we will explore Spring Web MVC and JSON Serialization, two essential components of modern Java web development. With Spring Web MVC, you'll learn how to build robust APIs and handle HTTP requests and responses. We'll also dive into JSON as a versatile data interchange format and cover techniques for converting Java objects to JSON and vice versa. By mastering these concepts, you'll enhance your skills in developing scalable and efficient web applications.

SKILLS UPON COMPLETION

- **Spring Web MVC**: Understand the core concepts of Spring Web MVC, including controllers, request mapping, and handling HTTP requests and responses.
- **JSON For Java**: Explore the fundamentals of JSON and its significance in web development. Learn how to work with JSON data in Java applications.
- **Java Objects to JSON Objects**: Dive deeper into JSON serialization and deserialization in Java. Discover how to convert Java objects to JSON objects and back, using popular libraries like Jackson.

DID YOU KNOW?

Spring Framework

Did you know that Spring Web MVC is just one part of the larger Spring Framework? Spring offers a comprehensive suite of modules that cover various aspects of enterprise application development, including dependency injection, data access, security, and more. Spring Web MVC focuses specifically on building web applications and provides a flexible and robust foundation for developing scalable and maintainable solutions.

DATABASE AND JPA

In this chapter, we will dive into the world of working with databases in Spring Boot. We'll explore the essential components and concepts necessary to store, retrieve, and manipulate data in our applications. Understanding how to work with databases is crucial for building robust and data-driven applications.

SKILLS UPON COMPLETION

- **N Tier Diagram**: Understand the architectural diagram that illustrates the layers involved in working with databases in Spring Boot.
- **Model**: Learn how to define the data models that represent the entities in our application's database.
- **DB & JPA Overview**: Get an overview of databases and the Java Persistence API (JPA), which provides a standard way to interact with databases in Java applications.
- **Postgres DB**: Explore the benefits of using Postgres as the database for our Spring Boot applications.
- **Installing PostgreSQL Driver and Spring Data JPA Dependencies**: Learn how to set up the necessary dependencies to work with Postgres and JPA in Spring Boot.
- **Datasource Configuration**: Configure the database connection details in Spring Boot to establish a connection with the database.
- **Create DB**: Understand how to create the required database for our application to store the data.
- **@Entity**: Discover the @Entity annotation and how it is used to define the entity classes in JPA.
- **Generated Table and Sequence**: Learn how JPA generates the database table schema and sequences based on the entity definitions.
- **CustomerRepository**: Explore the concept of repositories and how they provide a simplified way to interact with the database.

RESTFUL APIS

In the exciting world of building RESTful APIs with Spring Boot, this chapter serves as an introduction to the fundamentals of designing and implementing RESTful APIs. Here, we will explore the powerful capabilities of Spring Boot that enable seamless API development.

RESTful APIs have emerged as the standard for constructing scalable and flexible web services, and with Spring Boot, you can swiftly and efficiently create APIs that adhere to REST principles. Throughout this chapter, we will delve into the essential concepts and techniques that will empower you to build robust and efficient RESTful APIs using Spring Boot.

SKILLS UPON COMPLETION

- **Read Customers API**: Learn how to design and implement an API endpoint to retrieve customer data from a database and return it to the client.
- **Create Customer API**: Explore the process of creating an API endpoint to allow clients to add new customers to the system.
- **Delete Customer API**: Discover how to implement an API endpoint that enables clients to delete existing customers from the database.
- **How to structure your Backend**: Understand the best practices and recommended patterns for structuring the backend code of your Spring Boot application when building RESTful APIs.

DID YOU KNOW?

Backend Code Structure:

Did you know that structuring your backend code using modular patterns like MVC (Model-View-Controller) or Hexagonal architecture can provide several benefits? These patterns help decouple different layers of your application, making it easier to test, maintain, and extend specific functionalities without impacting other parts of the system. They also promote code reusability and separation of concerns, resulting in cleaner and more maintainable codebases.

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SPRING BOOT 3

SERVLETS, BEANS,
APPLICATION PROPERTIES,
CONFIG MANAGEMENT

API / HTTP

HTTP, REST AND API
DESIGN BEST PRACTICES

DEVELOPER TOOLS

INTELLIJ ULTIMATE,
TERMINAL,
POSTMAN.
GIT & GITHUB

ERROR HANDLING

CUSTOM EXCEPTIONS
HTTP STATUS CODE

DATABASES & POSTGRESQL

RELATIONAL DATABASE
AND CRUD

SPRING DATA JPA

ENTITIES,
CRUD REPOSITORIES,
CUSTOM QUERIES

FLYWAY

SCHEMA VERSIONING
AUTOMATED DATABASE
MIGHTATIONS

JDBC

DATA SOURCES,
CONNECTION POOL
JDBC TEMPLATES & CRUD

TESTING

UNIT TESTING,
INTEGRATION TESTING
MOCKING & TEST
CONTAINERS

DOCKER

BASICS OF DOCKER
AND CONTAINERS.
DOCKER COMPOSE

AWS

ELASTIC BEANSTALK, ECS, EC2, S3
LOAD BALANCERS, RDS,
ROUTE 53 & CERTIFICATE
MANAGER

DEVOPS

CONTINUOUS DELIVERY
& DELIVERY WITH
GITHUB ACTIONS

JAVASCRIPT

UP AND RUNNING WITH
JAVASCRIPT

REACT

HOOKS
COMPONENTS
DATA FETCHING
CONTEXT & ROUTING

SPRING SECURITY 6

SPRING SECURITY
ARCHITECTURE,
JWT

LOGIN/REGISTRATION

USER LOGIN AND
REGISTRATION,
PROTECTED ROUTES

TYPESCRIPT

UP AND RUNNING WITH
TYPESCRIPT

ANGULAR

COMPONENTS
ROUTING
DATA FETCHING

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