Mastering Java 9 Write Reactive Modular Concurrent And Secure Code

Mastering Microservices with Java 9Build domain-driven microservice-based applications with Spring, Spring Cloud, and AngularPackt Publishing Ltd
This book will teach you how to build robust asynchronous and event-driven applications with ease.About This Book* Learn about Java 9's Flow API, Reactive programming along with Kafka and Mockito, and how these aspects are utilized by RxJava* Build fast and concurrent applications with ease, without the complexity of Java's concurrent API and shared states, with the help of Spring* Explore a wide variety of code examples to easily get used to all the features and tools provided by RxJavaWho This Book Is ForThis book targets existing Java developers who want to understand Reactive programming and build responsive and resilient asynchronous applications using Reactive stream implementations.What You Will Learn* Understand the Reactive Manifesto* Grasp the Reactive Streams types introduced in Java 9 in the form of the Flow API* Use RxJava, a Reactive Streams implementation, to build asynchronous applications* Build responsiveness and resilience into applications using RxJava operators* Demonstrate the usage of Hystrix, a latency and fault tolerance library from Netfl ix that uses RxJava* Implement Reactive web applications using Spring Framework 5 and RxJavaIn DetailReactive programming is an asynchronous programming model that helps you tackle the essential complexity that comes with writing

such applications.Using Reactive programming to start building applications is not immediately intuitive to a developer who has been writing programs in the imperative paradigm. To tackle the essential complexity, Reactive programming uses declarative and functional paradigms to build programs. This book sets out to make the paradigm shift easy.This book begins by explaining what Reactive programming is, the Reactive manifesto, and the Reactive Streams specifi cation. It uses Java 9 to introduce the declarative and functional paradigm, which is necessary to write programs in the Reactive style. It explains Java 9's Flow API, an adoption of the Reactive Streams specifi cation. From this point on, it focuses on RxJava 2.0, covering topics such as creating, transforming,fi ltering, combining, and testing Observables. It discusses how to use Java's popular framework, Spring, to build event-driven, Reactive applications. You will also learn how to implement resiliency patterns using Hystrix. By the end, you will be fully equipped with the tools and techniques needed to implement robust, event-driven, Reactive applications.Style and approachThis book is a tutorial about Reactive programming in Java using APIs as well as the RxJava library. Packed with a lot of well-described examples, it explains Reactive programming concepts in plain and readable language.

Get the steps you need to discover the world of Java 9 programming using real-world examples About This Book We bridge the gap between "learning" and "doing" by providing real-world examples that will improve your software development Our example-based

approach will get you started quickly with software programming, get you up-to-speed with Java 9, and improve your Java skills This book will show you the best practices of Java coding and improve your productivity Who This Book Is For This book is for anyone who wants to learn the Java programming language. You are expected to have some prior programming experience with another language, such as JavaScript or Python, but no knowledge of earlier versions of Java is assumed. What You Will Learn Compile, package and run a trivial program using a build management tool Get to know the principles of test-driven development and dependency management Separate the wiring of multiple modules from the application logic into an application using dependency injection Benchmark Java execution using Java 9 microbenchmarking See the workings of the Spring framework and use Java annotations for the configuration Master the scripting API built into the Java language and use the built-in JavaScript interpreter Understand static versus dynamic implementation of code and high-order reactive programming in Java In Detail This book gets you started with essential software development easily and quickly, guiding you through Java's different facets. By adopting this approach, you can bridge the gap between learning and doing immediately. You will learn the new features of Java 9 quickly and experience a simple and powerful approach to software development. You will be able to use the Java runtime tools, understand the Java environment, and create Java programs. We then cover more simple examples to build your foundation before diving to some

complex data structure problems that will solidify your Java 9 skills. With a special focus on modularity and HTTP 2.0, this book will guide you to get employed as a top notch Java developer. By the end of the book, you will have a firm foundation to continue your journey towards becoming a professional Java developer. Style and approach Throughout this book, our aim is to build Java programs. We will be building multiple applications ranging from simpler ones to more complex ones. Learning by doing has its advantages as you will immediately see the concepts explained in action. Get up to speed on Scala, the JVM language that offers all the benefits of a modern object model, functional programming, and an advanced type system. Packed with code examples, this comprehensive book shows you how to be productive with the language and ecosystem right away, and explains why Scala is ideal for today's highly scalable, data-centric applications that support concurrency and distribution. This second edition covers recent language features, with new chapters on pattern matching, comprehensions, and advanced functional programming. You'll also learn about Scala's command-line tools, third-party tools, libraries, and language-aware plugins for editors and IDEs. This book is ideal for beginning and advanced Scala developers alike. Program faster with Scala's succinct and flexible syntax Dive into basic and advanced functional programming (FP) techniques Build killer big-data apps, using Scala's functional combinators Use traits for mixin composition and pattern matching for data extraction Learn the sophisticated type system that combines FP

and object-oriented programming concepts Explore Scala-specific concurrency tools, including Akka Understand how to develop rich domain-specific languages Learn good design techniques for building scalable and robust Scala applications Build robust and reliable Java applications that works on modern infrastructure, such as containers and cloud, using the new features in Quarkus 1.0 Key Features Build apps with faster boot time and low RSS memory using the latest Quarkus 1.0 features Seamlessly integrate imperative and reactive programming models to build modern Java applications Discover effective solutions for running Java on serverless apps, microservices, containers, FaaS, and the cloud Book Description Quarkus is a new Kubernetes-native framework that allows Java developers to combine the power of containers, microservices, and cloud-native to build reliable applications. The book is a development guide that will teach you how to build Java-native applications using Quarkus and GraalVM. We start by learning about the basic concepts of a cloud-native application and its advantages over standard enterprise applications. Then we will quickly move on to application development, by installing the tooling required to build our first application on Quarkus. Next, we'll learn how to create a container-native image of our application and execute it in a Platform-as-a-Service environment such as Minishift. Later, we will build a complete real-world application that will use REST and the Contexts and Dependency injection stack with a web frontend. We will also learn how to add database persistence to our

application using PostgreSQL. We will learn how to work with various APIs available to Quarkus such as Camel, Eclipse MicroProfile, and Spring DI. Towards the end, we will learn advanced development techniques such as securing applications, application configuration, and working with non-blocking programming models using Vert.x. By the end of this book, you will be proficient with all the components of Quarkus and develop-blazing fast applications leveraging modern technology infrastructure. What you will learn Build a native application using Quarkus and GraalVM Secure your applications using Elytron and the MicroProfile JWT extension Manage data persistence with Quarkus using PostgreSQL Use a non-blocking programming model with Quarkus Learn how to get Camel and Infinispan working in native mode Deploy an application in a Kubernetes-native environment using Minishift Discover Reactive Programming with Vert.x Who this book is for The book is for Java developers and software architects who are interested in learning a promising microservice architecture for building reliable and robust applications. Knowledge of Java, Spring Framework, and REST APIs is assumed.

"Modern applications take advantage of innovative designs, including microservices, reactive architectures, and streaming data. Modern Java features like lambdas, streams, and the long-awaited Java Module System make implementing these designs significantly easier. It's time to upgrade your skills and meet these challenges head on! Modern Java in action connects new features of the Java language with their practical

applications. Using crystal-clear examples and careful attention to detail, this book respects your time. It will help you expand your existing knowledge of core Java as you master modern additions like the Streams API and the Java Module System, explore new approaches to concurrency, and learn how functional concepts can help you write code that's easier to read and maintain."--Page 4 de la couverture.

Best practices to adapt and bottlenecks to avoid About This Book Tackle all kinds of performance-related issues and streamline your development Master the new features and new APIs of Java 9 to implement highly efficient and reliable codes Gain an in-depth knowledge of Java application performance and obtain best results from performance testing Who This Book Is For This book is for Java developers who would like to build reliable and high-performance applications. Prior Java programming knowledge is assumed. What You Will Learn Work with JIT compilers Understand the usage of profiling tools Generate JSON with code examples Leverage the command-line tools to speed up application development Build microservices in Java 9 Explore the use of APIs to improve application code Speed up your application with reactive programming and concurrency In Detail Finally, a book that focuses on the practicalities rather than theory of Java application performance tuning. This book will be your one-stop guide to optimize the performance of your Java applications. We will begin by understanding the new features and APIs of Java 9. You will then be taught the practicalities of Java application performance tuning,

how to make the best use of garbage collector, and find out how to optimize code with microbenchmarking. Moving ahead, you will be introduced to multithreading and learning about concurrent programming with Java 9 to build highly concurrent and efficient applications. You will learn how to fine tune your Java code for best results. You will discover techniques on how to benchmark performance and reduce various bottlenecks in your applications. We'll also cover best practices of Java programming that will help you improve the quality of your codebase. By the end of the book, you will be armed with the knowledge to build and deploy efficient, scalable, and concurrent applications in Java. Style and approach This step-by-step guide provides real-world examples to give you a hands-on experience. Master the principles to make applications robust, scalable and responsive About This Book Implement concurrent applications using the Java 9 Concurrency API and its new components Improve the performance of your applications and process more data at the same time, taking advantage of all of your resources Construct real-world examples related to machine learning, data mining, natural language processing, and more Who This Book Is For This book is for competent Java developers who have basic understanding of concurrency, but knowledge of effective implementation of concurrent programs or usage of streams for making processes more efficient is not required What You Will Learn Master the principles that every concurrent application must follow See how to parallelize a sequential algorithm to obtain better performance without

data inconsistencies and deadlocks Get the most from the Java Concurrency API components Separate the thread management from the rest of the application with the Executor component Execute phased-based tasks in an efficient way with the Phaser components Solve problems using a parallelized version of the divide and conquer paradigm with the Fork / Join framework Find out how to use parallel Streams and Reactive Streams Implement the "map and reduce" and "map and collect" programming models Control the concurrent data structures and synchronization mechanisms provided by the Java Concurrency API Implement efficient solutions for some actual problems such as data mining, machine learning, and more In Detail Concurrency programming allows several large tasks to be divided into smaller sub-tasks, which are further processed as individual tasks that run in parallel. Java 9 includes a comprehensive API with lots of ready-to-use components for easily implementing powerful concurrency applications, but with high flexibility so you can adapt these components to your needs. The book starts with a full description of the design principles of concurrent applications and explains how to parallelize a sequential algorithm. You will then be introduced to Threads and Runnables, which are an integral part of Java 9's concurrency API. You will see how to use all the components of the Java concurrency API, from the basics to the most advanced techniques, and will implement them in powerful real-world concurrency applications. The book ends with a detailed description of the tools and techniques you can use to test a concurrent Java application, along with a brief

insight into other concurrency mechanisms in JVM. Style and approach This is a complete guide that implements real-world examples of algorithms related to machine learning, data mining, and natural language processing in client/server environments. All the examples are explained using a step-by-step approach.

The 1st International Conference On Culture, Education, Linguistics, and Literature (CELL) Universitas Jenderal Soedirman (Jenderal Soedirman University). The rapid development of information and communication technology on information continuously encourages the global society known as Industrial Revolution 4.0. It was first introduced by German Economist, Klaus Schwab, in his book entitled "The Fourth Industrial Technology" in 2012. The complexity and interconnected sector in our daily life urge all stakeholders of the global society (governments, business actors, academicians, and civil society) have the responsibility to work together. The conference invites delegates from across Indonesian and attended by more than 75 participants from university academics, researchers, practitioners, and professionals across a wide range of industries.

In today's app-driven era, when programs are asynchronous and responsiveness is so vital, reactive programming can help you write code that's more reliable, easier to scale, and better-performing. With this practical book, Java developers will first learn how to view problems in the reactive way, and then build programs that leverage the best features of this exciting new programming paradigm. Authors Tomasz Nurkiewicz and Ben Christensen include concrete examples that use the RxJava library to solve real-world performance issues on Android devices as well as the server. You'll learn how RxJava leverages parallelism and concurrency to help you solve today's problems. This book also provides a

preview of the upcoming 2.0 release. Write programs that react to multiple asynchronous sources of input without descending into "callback hell" Get to that aha! moment when you understand how to solve problems in the reactive way Cope with Observables that produce data too quickly to be consumed Explore strategies to debug and to test programs written in the reactive style Efficiently exploit parallelism and concurrency in your programs Learn about the transition to RxJava version 2

Master the art of fast, effective Java development with the power of concurrent and parallel programming About This Book Get detailed coverage of important recipes on multi-threading and parallel programming This book takes a close look at the Java 9 APIs and their impact on concurrency See practical examples on thread safety, high-performance classes, safe sharing, and a whole lot more Who This Book Is For The book is for Java developers and programmers at an intermediate to advanced level. It will be especially useful for developers who want to take advantage of task-based recipes using Java 9's concurrent API to program thread-safe solutions. What You Will Learn Find out to manage the basic components of the Java Concurrency API Use synchronization mechanisms to avoid data race conditions and other problems of concurrent applications Separate the thread management from the rest of the application with the Executor framework Solve problems using a parallelized version of the divide and conquer paradigm with the Fork / Join framework Process massive data sets in an optimized way using streams and reactive streams See which data structures we can use in concurrent applications and how to use them Practice efficient techniques to test concurrent applications Get to know tips and tricks to design concurrent applications In Detail Writing concurrent and parallel programming applications is an integral skill for any Java

programmer. Java 9 comes with a host of fantastic features, including significant performance improvements and new APIs. This book will take you through all the new APIs, showing you how to build parallel and multi-threaded applications. The book covers all the elements of the Java Concurrency API, with essential recipes that will help you take advantage of the exciting new capabilities. You will learn how to use parallel and reactive streams to process massive data sets. Next, you will move on to create streams and use all their intermediate and terminal operations to process big collections of data in a parallel and functional way. Further, you'll discover a whole range of recipes for almost everything, such as thread management, synchronization, executors, parallel and reactive streams, and many more. At the end of the book, you will learn how to obtain information about the status of some of the most useful components of the Java Concurrency API and how to test concurrent applications using different tools. Style and approach This recipe-based book will allow you to explore the exciting capabilities of concurrency in Java. After reading this book, you will be able to comfortably build parallel applications in Java 9. Microservices are the next big thing in designing scalable, easy-to-maintain applications. This latest edition of Mastering Microservices with Java, works on Java 11. It covers a wide range of exciting, new developments in the world of microservices such as microservices patterns, interprocess communication with gRPC, and service orchestration. Master the art of creating scalable, concurrent, and reactive applications using Akka About This Book This book will help you cure anemic models with domain-driven design We cover major Akka programming concepts such as concurrency, scalability, and reactivity You will learn concepts like Event Sourcing and CQRS via Akka Persistence, Akka Streams, Akka Http as well as Akka Clustering Who This Book Is For If

you want to use the Lightbend platform to create highly performant reactive applications, then this book is for you. If you are a Scala developer looking for techniques to use all features of the new Akka release and want to incorporate these solutions in your current or new projects, then this book is for you. Expert Java developers who want to build scalable, concurrent, and reactive application will find this book helpful. What You Will Learn Use Akka actors to enable parallel execution Build out domain-driven design based components like entities and aggregates Respond to command requests on that aggregate root that affect the internal state Leverage Akka Persistence, protobuf and Cassandra to save the persistent state of you entities Build out complex processing graphs with the Graph Builder DSL Understand the dynamic push/pull nature of backpressure handling within Akka Streams Route HTTP requests to an actor and return a response Deploy actor instances across a set of nodes via ConductR for high availability In Detail For a programmer, writing multi-threaded applications is critical as it is important to break large tasks into smaller ones and run them simultaneously. Akka is a distributed computing toolkit that uses the abstraction of the Actor model, enabling developers to build correct, concurrent, and distributed applications using Java and Scala with ease. The book begins with a quick introduction that simplifies concurrent programming with actors. We then proceed to master all aspects of domain-driven design. We'll teach you how to scale out with Akka Remoting/Clustering. Finally, we introduce Conductr as a means to deploy to and manage microservices across a cluster. Style and approach This comprehensive, fast-paced guide is packed with several real-world use cases that will help you understand concepts, issues, and resolutions while using Akka to create highly performant, scalable, and concurrency-proof reactive applications.

Unlock the powers of functional programming hidden within JavaScript to build smarter, cleaner, and more reliable web appsAbout This Book- Write powerful code with the high-level functions that JavaScript offers- Discover what functional programming is, why it's effective, and how it's used in JavaScript- Understand and optimize JavaScript's hidden potential as a true functional languageWho This Book Is ForIf you are a JavaScript developer interested in learning functional programming, looking for the quantum leap toward mastering the JavaScript language, or just want to become a better programmer in general, then this book is ideal for you. This guide is aimed at programmers, involved in developing reactive frontend apps, server-side apps that wrangle with reliability and concurrency, and everything in between.What You Will Learn- Get a run through of the basic JavaScript language constructs- Code using the powerful object-oriented feature in JavaScript- Master DOM manipulation, cross-browser strategies, and ES6- Understand the basic concurrency constructs in Javascript and best performance strategies- Harness the power of patterns for tasks ranging from application building to code testing- Build large-scale apps seamlessly with the help of reactive patterns- Explore advanced design patterns, including dependency injection- Develop more powerful applications with currying and function composition- Create more reliable code with closures and immutable dataIn DetailJavaScript is a high-level, dynamic, untyped, lightweight, and interpreted programming language and functional programming is a style that emphasizes and enables smarter code that minimizes complexity and increases modularity. It's a way of writing cleaner code through clever ways of mutating, combining, and using functions. And JavaScript provides an excellent medium for this approach. By learning how to expose JavaScript's true identity as a functional language, we can

implement web apps that are more powerful, easier to maintain and more reliable.The java script: Functional Programming for JavaScript Developers course will take you on a journey to show how functional programming when combined with other techniques makes JavaScript programming more efficient.The first module Mastering JavaScript, stress on practical aspects of Javascript development like-Functions and Closures, Runtime debugging techniques, project layout, events and DOM processing, build tools, Object-oriented patterns, isomorphism-everything that a modern Javascript project would need.The second module, Mastering JavaScript Design Patterns - Second Edition, will explore how design patterns can help you improve and organize your JavaScript code. You'll get to grips with creational, structural, and behavioral patterns as you discover how to put them to work in different scenarios. This updated edition will also delve into reactive design patterns and microservices as they are a growing phenomenon in the world of web development. It will also show you some advanced patterns, including dependency injection and live post processing.The third module, Functional Programming in JavaScript, will help you to write real-world applications by utilizing a wide range of functional techniques and styles. It explores the core concepts of functional programming common to all functional languages, with examples of their use in JavaScript.Style and approachThis course will begin with providing insights and practical tips on advanced JavaScript features to build highly scalable web and mobile system and move on to some design patterns with JavaScript. Finally, the course ends with presenting the functional programming techniques and styles in JavaScript.

This book provides an integrated view of the five kinds of enabling technologies in terms of knowledge media

architectures: multimedia and hypermedia, object-oriented GUI and visual programming, reusable component software and component integration, network publishing and electronic commerce, and object-oriented and multimedia databases. Among many books on multimedia and hypermedia, few address knowledge. Of those that do, none focus on media for the editing, distribution, and management of knowledge the way this book does. It is written based on the hypothesis that knowledge media work as genes, with their network publishing repository, working as a gene pool to accelerate the evolution of knowledge shared in our societies. A definitive guide to learning the key concepts of modern application development in JavaAbout This Book* Learn the latest features of Java 9* Extend your Java knowledge and take your application to new levels by making it fast, secure, and scalable* Delve into the intricacies of Modular programming in Java 9Who This Book Is ForThe book is for intermediate to advanced Java programmers who want to quickly try out the new features of Java 9.What you will learn* Set up JDK and know the differences in the JDK 9 installation* Implement OO Designs using Classes and Interfaces* Manage operating system processes* Understand the new modular JDK and modular programming* Build graphical user interfaces using JavaFX* Use the new HTTP Client API* Get to know about the new diagnostic features in Java 9* See how to use the new jShell REPL tool* Test your microservices* Execute ES6 compliant JavaScript code from your Java applicationsIn DetailJava is an object-oriented programming language. It is one of the most widely accepted languages because of its design and programming features, particularly in its promise that you can write a program once and run it anywhere.This cookbook offers a range of software development examples in simple and straightforward Java 9 code, providing step-by-step resources and time-saving

methods to help you solve data problems efficiently. Starting with the installation of Java, each recipe addresses a specific problem, with a discussion that explains the solution and offers insight into how it works.We cover major concepts such as Project Jigsaw and various tools that will enable you to modularize your applications. You will learn new features in the form of recipes that will make your applications modular, secure, and fast.After reading this book, you will have a good understanding of how Java works and how it can be integrated with third-party technologies.

Learn how to build amazing and complex reactive web applications easily with Vue.js About This Book Learn how to propagate DOM changes across the website without writing extensive jQuery callbacks code. Learn how to achieve reactivity and easily compose views with Vue.js and understand what it does behind the scenes. Explore the core features of Vue.js with small examples, learn how to build dynamic content into preexisting web applications, and build Vue.js applications from scratch. Who This Book Is For This book is perfect for novice web developer seeking to learn new technologies or frameworks and also for webdev gurus eager to enrich their experience. Whatever your level of expertise, this book is a great introduction to the wonderful world of reactive web apps. What You Will Learn Build a fully functioning reactive web application in Vue.js from scratch. The importance of the MVVM architecture and how Vue.js compares with other frameworks such as Angular.js and React.js. How to bring reactivity to an existing static application using Vue.js. How to use plugins to enrich your applications. How to develop customized plugins to meet your needs. How to use

Vuex to manage global application's state. In Detail Vue.js is one of the latest new frameworks to have piqued the interest of web developers due to its reactivity, reusable components, and ease of use. This book shows developers how to leverage its features to build high-performing, reactive web interfaces with Vue.js. From the initial structuring to full deployment, this book provides step-by-step guidance to developing an interactive web interface from scratch with Vue.js. You will start by building a simple application in Vue.js which will let you observe its features in action. Delving into more complex concepts, you will learn about reactive data binding, reusable components, plugins, filters, and state management with Vuex. This book will also teach you how to bring reactivity to an existing static application using Vue.js. By the time you finish this book you will have built, tested, and deployed a complete reactive application in Vue.js from scratch. Style and approach This book is a thorough, step-by-step guide showing readers how to build complete web apps with Vue.js. While teaching its intricacies, this book shows how to implement the MVVM architecture in the real world and build high-performing web interfaces. Summary Manning's bestselling Java 8 book has been revised for Java 9! In Modern Java in Action, you'll build on your existing Java language skills with the newest features and techniques. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Modern applications take advantage of innovative designs, including microservices, reactive architectures,

and streaming data. Modern Java features like lambdas, streams, and the long-awaited Java Module System make implementing these designs significantly easier. It's time to upgrade your skills and meet these challenges head on! About the Book Modern Java in Action connects new features of the Java language with their practical applications. Using crystal-clear examples and careful attention to detail, this book respects your time. It will help you expand your existing knowledge of core Java as you master modern additions like the Streams API and the Java Module System, explore new approaches to concurrency, and learn how functional concepts can help you write code that's easier to read and maintain. What's inside Thoroughly revised edition of Manning's bestselling Java 8 in Action New features in Java 8, Java 9, and beyond Streaming data and reactive programming The Java Module System About the Reader Written for developers familiar with core Java features. About the Author Raoul-Gabriel Urma is CEO of Cambridge Spark. Mario Fusco is a senior software engineer at Red Hat. Alan Mycroft is a University of Cambridge computer science professor; he cofounded the Raspberry Pi Foundation. Table of Contents PART 1 - FUNDAMENTALS Java 8, 9, 10, and 11: what's happening? Passing code with behavior parameterization Lambda expressions PART 2 - FUNCTIONAL-STYLE DATA PROCESSING WITH STREAMS Introducing streams Working with streams Collecting data with streams Parallel data processing and performance PART 3 - EFFECTIVE PROGRAMMING WITH STREAMS AND LAMBDAS

Collection API enhancements Refactoring, testing, and debugging Domain-specific languages using lambdas PART 4 - EVERYDAY JAVA Using Optional as a better alternative to null New Date and Time API Default methods The Java Module System PART 5 - ENHANCED JAVA CONCURRENCY Concepts behind CompletableFuture and reactive programming CompletableFuture: composable asynchronous programming Reactive programming PART 6 - FUNCTIONAL PROGRAMMING AND FUTURE JAVA EVOLUTION Thinking functionally Functional programming techniques Blending OOP and FP: Comparing Java and Scala Conclusions and where next for Java

As part of the best-selling Pocket Primer series, this book provides an overview of the major aspects and the source code to use the latest versions of Angular 4. It has coverage of the fundamental aspects of Angular that are illustrated via numerous code samples. This Pocket Primer is primarily for self-directed learners who want to learn Angular 4 programming, and it serves as a starting point for deeper exploration of its numerous applications. A companion disc (also available for downloading from the publisher) with source code and color images is included. FEATURES -Contains latest material on Angular 4, graphics/animation, mobile apps, -Includes companion files with all of the source code and images from the book -Provides coverage of the fundamental aspects of Angular4 that are illustrated via code samples BRIEF TABLE OF CONTENTS 1. A Quick Introduction to Angular. 2. UI Controls and User Input. 3. Graphics

and Animation. 4. HTTP Requests and Routing. 5. Forms, Pipes, and Services. 6. Angular and Express. 7. Flux, Redux, GraphQL, Apollo, and Relay. 8. Angular and Mobile Apps. 9. Functional Reactive Programming. 10. Miscellaneous Topics. Index. ON THE COMPANION FILES! -Hundreds of source code samples -All images from the text (including 4-color) eBook Customers: Companion files are available for downloading with order number/proof of purchase by writing to the publisher at info@merclearning.com.

Over 100 hands-on recipes to build web applications easily and efficiently IN Spring 5.0About This Book* Solve real-world problems using the latest features of the Spring framework like Reactive Streams and the Functional Web Framework.* Learn how to use dependency injection and aspect-oriented programming to write compartmentalized and testable code.* Understand when to choose between Spring MVC and Spring Web Reactive for your projectsWho This Book Is ForJava developers who would like to gain in-depth knowledge of how to overcome problems that they face while developing great Spring applications. It will also cater to Spring enthusiasts, users and experts who need an arena for comparative analysis, new ideas and inquiries on some details regarding Spring 5.0 and its previous releases. A basic knowledge of Spring development is essentialWhat You Will Learn* Understand how functional programming and concurrency in JDK 1.9 works, and how it will affect Spring 5.0* Learn the importance and application of reactive programming in creating services, and also the

process of creating asynchronous MVC applications* Implement different Spring Data modules* Integrate Spring Security to the container* Create applications and deploy using Spring Boot* Conceptualize the architecture behind Microservices and learn the details of its implementation* Create different test cases for the components of Spring 5.0 componentsIn DetailThe Spring framework has been the go-to framework for Java developers for quite some time. It enhances modularity, provides more readable code, and enables the developer to focus on developing the application while the underlying framework takes care of transaction APIs, remote APIs, JMX APIs, and JMS APIs.The upcoming version of the Spring Framework has a lot to offer, above and beyond the platform upgrade to Java 9, and this book will show you all you need to know to overcome common to advanced problems you might face.Each recipe will showcase some old and new issues and solutions, right from configuring Spring 5.0 container to testing its components. Most importantly, the book will highlight concurrent processes, asynchronous MVC and reactive programming using Reactor Core APIs. Aside from the core components, this book will also include integration of third-party technologies that are mostly needed in building enterprise applications.By the end of the book, the reader will not only be well versed with the essential concepts of Spring, but will also have mastered its latest features in a solution-oriented manner.Style and ApproachThis book follows a cookbook style approach, presenting a problem and showing you how to overcome it with useful recipes. The examples provided will help

you code along as you learn.

Use Spring Boot to build lightning-fast apps About This Book Get up to date with the defining characteristics of Spring Boot 2.0 in Spring Framework 5 Learn to perform Reactive programming with SpringBoot Learn about developer tools, AMQP messaging, WebSockets, security, MongoDB data access, REST, and more Who This Book Is For This book is designed for both novices and experienced Spring developers. It will teach you how to override Spring Boot's opinions and frees you from the need to define complicated configurations. What You Will Learn Create powerful, production-grade applications and services with minimal fuss Support multiple environments with one artifact, and add production-grade support with features Find out how to tweak your apps through different properties Use custom metrics to track the number of messages published and consumed Enhance the security model of your apps Make use of reactive programming in Spring Boot Build anything from lightweight unit tests to fully running embedded web container integration tests In Detail Spring Boot provides a variety of features that address today's business needs along with today's scalable requirements. In this book, you will learn how to leverage powerful databases and Spring Boot's state-of-the-art WebFlux framework. This practical guide will help you get up and running with all the latest features of Spring Boot, especially the new Reactor-based toolkit. The book starts off by helping you build a simple app, then shows you how to bundle and deploy it to the cloud. From here, we take you through reactive programming, showing you how to interact with

controllers and templates and handle data access. Once
you're done, you can start writing unit tests, slice tests,
embedded container tests, and even autoconfiguration
tests. We go into detail about developer tools, AMQP
messaging, WebSockets, security, and deployment. You
will learn how to secure your application using both
routes and method-based rules. By the end of the book,
you'll have built a social media platform from which to
apply the lessons you have learned to any problem. If
you want a good understanding of building scalable
applications using the core functionality of Spring Boot,
this is the book for you. Style and approach This book
takes a tutorial-based approach to teach you all you
need to know to get up and running with the latest
version of Spring Boot. Filled with examples, you will
gain hands-on experience of every area that Spring
tackles.
Develop cloud native applications with microservices
using Spring Boot, Spring Cloud, and Spring Cloud Data
Flow About This Book Explore the new features and
components in Spring Evolve towards micro services
and cloud native applications Gain powerful insights into
advanced concepts of Spring and Spring Boot to develop
applications more effectively Understand the basics of
Kotlin and use it to develop a quick service with Spring
Boot Who This Book Is For This book is for an
experienced Java developer who knows the basics of
Spring, and wants to learn how to use Spring Boot to
build applications and deploy them to the cloud. What
You Will Learn Explore the new features in Spring
Framework 5.0 Build microservices with Spring Boot Get

to know the advanced features of Spring Boot in order to effectively develop and monitor applications Use Spring Cloud to deploy and manage applications on the Cloud Understand Spring Data and Spring Cloud Data Flow Understand the basics of reactive programming Get to know the best practices when developing applications with the Spring Framework Create a new project using Kotlin and implement a couple of basic services with unit and integration testing In Detail Spring 5.0 is due to arrive with a myriad of new and exciting features that will change the way we've used the framework so far. This book will show you this evolution—from solving the problems of testable applications to building distributed applications on the cloud. The book begins with an insight into the new features in Spring 5.0 and shows you how to build an application using Spring MVC. You will realize how application architectures have evolved from monoliths to those built around microservices. You will then get a thorough understanding of how to build and extend microservices using Spring Boot. You will also understand how to build and deploy Cloud-Native microservices with Spring Cloud. The advanced features of Spring Boot will be illustrated through powerful examples. We will be introduced to a JVM language that's quickly gaining popularity - Kotlin. Also, we will discuss how to set up a Kotlin project in Eclipse. By the end of the book, you will be equipped with the knowledge and best practices required to develop microservices with the Spring Framework. Style and approach This book follows an end-to-end tutorial approach with lots of examples and sample applications, covering the major

building blocks of the Spring framework.
This book is intended for those developers who are keen to master the internal workings of Play Framework to effectively build and deploy web-related apps.
Use Spring Boot to build lightning-fast appsAbout This Book* Get up to date with the defining characteristics of Spring Boot 2.0 in Spring Framework 5* Learn to perform Reactive programming with SpringBoot* Learn about developer tools, AMQP messaging, WebSockets, security, MongoDB data access, REST, and moreWho This Book Is ForThis book is designed for both novices and experienced Spring developers. It will teach you how to override Spring Boot's opinions and frees you from the need to define complicated configurations.What You Will Learn* Create powerful, production-grade applications and services with minimal fuss* Support multiple environments with one artifact, and add production-grade support with features* Find out how to tweak your apps through different properties* Use custom metrics to track the number of messages published and consumed* Enhance the security model of your apps* Make use of reactive programming in Spring Boot* Build anything from lightweight unit tests to fully running embedded web container integration testsIn DetailSpring Boot provides a variety of features that address today's business needs along with today's scalable requirements. In this book, you will learn how to leverage powerful databases and Spring Boot's state-of-the-art WebFlux framework. This practical guide will help you get up and running with all the latest features of Spring Boot, especially the new Reactor-based toolkit.The book starts off by helping you

build a simple app, then shows you how to bundle and deploy it to the cloud. From here, we take you through reactive programming, showing you how to interact with controllers and templates and handle data access. Once you're done, you can start writing unit tests, slice tests, embedded container tests, and even autoconfiguration tests.We go into detail about developer tools, AMQP messaging, WebSockets, security, and deployment. You will learn how to secure your application using both routes and method-based rules. By the end of the book, you'll have built a social media platform from which to apply the lessons you have learned to any problem. If you want a good understanding of building scalable applications using the core functionality of Spring Boot, this is the book for you.Style and approachThis book takes a tutorial-based approach to teach you all you need to know to get up and running with the latest version of Spring Boot. Filled with examples, you will gain hands-on experience of every area that Spring tackles.

Build robust, highly scalable reactive web applications with Ratpack, the lightweight JVM framework. With this practical guide, you'll discover how asynchronous applications differ from more traditional thread-per-request systems—and how you can reap the benefits of complex non-blocking through an API that makes the effort easy to understand and adopt. Author Dan Woods—a member of the Ratpack core team—provides a progressively in-depth tour of Ratpack and its

capabilities, from basic concepts to tools and strategies to help you construct fast, test-driven applications in a semantic and expressive way. Ideal for Java web developers familiar with Grails or Spring, this book is applicable to all versions of Ratpack 1.x. Configure your applications and servers to accommodate the cloud Use Ratpack testing structures on both new and legacy applications Add advanced capabilities, such as component binding, with modules Explore Ratpack's static content generation and serving mechanisms Provide a guaranteed execution order to asynchronous processing Model data and the data access layer to build high-performance, data-driven applications Work with reactive and functional programming strategies Use distribution techniques that support continuous delivery and other deployment tactics Men's Health magazine contains daily tips and articles on fitness, nutrition, relationships, sex, career and lifestyle. Discover how cloud-native microservice architecture helps you to build dynamically scalable applications by using the most widely used and adopted runtime environments Key Features Build robust cloud-native applications using a variety of tools Understand how to configure both Amazon Web Services (AWS) and Docker clouds for high availability Explore common design patterns used in building and deploying microservices architecture. Book Description

Businesses today are evolving rapidly, and developers now face the challenge of building applications that are resilient, flexible, and native to the cloud. To achieve this, you'll need to be aware of the environment, tools, and resources that you're coding against. The book will begin by introducing you to cloud-native architecture and simplifying the major concepts. You'll learn to build microservices in Jakarta EE using MicroProfile with Thorntail and Narayana LRA. You'll then delve into cloud-native application x-rays, understanding the MicroProfile specification and the implementation/testing of microservices. As you progress further, you'll focus on continuous integration and continuous delivery, in addition to learning how to dockerize your services. You'll also cover concepts and techniques relating to security, monitoring, and troubleshooting problems that might occur with applications after you've written them. By the end of this book, you will be equipped with the skills you need to build highly resilient applications using cloud-native microservice architecture. What you will learn Integrate reactive principles in MicroProfile microservices architecture Explore the 12-factors-app paradigm and its implications Get the best out of Java versions 8 and 9 to implement a microservice based on Thorntail Understand what OpenShift is and why it is so important for an elastic architecture Build a Linux container image using Docker and scale the

application using Kubernetes Implement various patterns such as, Circuit Breaker and bulkheads Get to grips with the DevOps methodology using continuous integration (CI) and continuous deployment (CD) Who this book is for This book is for developers with basic knowledge of Java EE and HTTP-based application principles who want to learn how to build, test and scale Java EE microservices. No prior experience of writing microservices in Java EE is required.

Reactive Programming with Java and ReactiveX About This Book Explore the essential tools and operators RxJava provides, and know which situations to use them in Delve into Observables and Subscribers, the core components of RxJava used for building scalable and performant reactive applications Delve into the practical implementation of tools to effectively take on complex tasks such as concurrency and backpressure Who This Book Is For The primary audience for this book is developers with at least a fundamental mastery of Java. Some readers will likely be interested in RxJava to make programs more resilient, concurrent, and scalable. Others may be checking out reactive programming just to see what it is all about, and to judge whether it can solve any problems they may have. What You Will Learn Learn the features of RxJava 2 that bring about many significant changes, including new reactive types such as Flowable, Single, Maybe, and

Completable Understand how reactive programming works and the mindset to "think reactively" Demystify the Observable and how it quickly expresses data and events as sequences Learn the various Rx operators that transform, filter, and combine data and event sequences Leverage multicasting to push data to multiple destinations, and cache and replay them Discover how concurrency and parallelization work in RxJava, and how it makes these traditionally complex tasks trivial to implement Apply RxJava and Retrolambda to the Android domain to create responsive Android apps with better user experiences Use RxJava with the Kotlin language to express RxJava more idiomatically with extension functions, data classes, and other Kotlin features In Detail RxJava is a library for composing asynchronous and event-based programs using Observable sequences for the JVM, allowing developers to build robust applications in less time. Learning RxJava addresses all the fundamentals of reactive programming to help readers write reactive code, as well as teach them an effective approach to designing and implementing reactive libraries and applications. Starting with a brief introduction to reactive programming concepts, there is an overview of Observables and Observers, the core components of RxJava, and how to combine different streams of data and events together. You will also learn simpler ways to achieve concurrency and remain highly

performant, with no need for synchronization. Later on, we will leverage backpressure and other strategies to cope with rapidly-producing sources to prevent bottlenecks in your application. After covering custom operators, testing, and debugging, the book dives into hands-on examples using RxJava on Android as well as Kotlin. Style and approach This book will be different from other Rx books, taking an approach that comprehensively covers Rx concepts and practical applications. Build, test, and secure robust enterprise-grade applications using the Spring FrameworkAbout This Book* Build an enterprise application throughout the book that communicates with a microservic* Define and inject dependencies into your objects using the IoC container* Make use of Spring's reactive features including tools and implement a reactive Spring MVC applicationWho This Book Is ForThis book is for Java developers who want to make use of the Spring framework to simplify their programming needs.What you will learn* Get to know the basics of Spring development and gain fundamental knowledge about why and where to use Spring Framework* Explore the power of Beans using Dependency Injection, wiring, and Spring Expression Language* Implement and integrate a persistent layer in your application and also integrate an ORM such as Hibernate* Understand how to manage cross-cutting with logging mechanism,

transaction management, and more using Aspect-oriented programming* Explore Spring MVC and know how to handle requesting data and presenting the response back to the user* Understand the integration of RESTful APIs and Messaging with WebSocket and STOMP* Understand Reactive Programming using Spring MVC to handle non-blocking streamsIn DetailSpring is the most widely used framework for Java programming and with its latest update to 5.0 rolling out early next year, the framework is undergoing massive changes. Built to work with both Java 8 and Java 9, Spring 5.0 promises to simplify the way developers write code, while still being able to create robust, enterprise applications.If you want to learn how to get around the Spring framework and use it to build your own amazing applications, then this book is for you.Beginning with an introduction to Spring and setting up the environment, the book will teach you in detail about the Bean life cycle and help you discover the power of wiring for dependency injection. Gradually, you will learn the core elements of Aspect-Oriented Programming and how to work with Spring MVC and then understand how to link to the database and persist data configuring ORM, using Hibernate.You will then learn how to secure and test your applications using the Spring-test and Spring-Security modules. At the end, you will enhance your development skills by getting to grips

with the integration of RESTful APIs, building microservices, and doing reactive programming using Spring, as well as messaging with WebSocket and STOMP.

Understand the philosophy of the Clojure language and dive into its inner workings to unlock its advanced features, methodologies, and constructs About This Book Learn to handle data using sequences, reducers, and transducers in Clojure Explore the lesser known and more advanced features, constructs, and methodologies of the Clojure language and its ecosystem, such as asynchronous channels, actors, logic programming, and reactive programming Sharpen your Clojure skills through illustrative and comprehensive examples Who This Book Is For If you're looking to learn more about the core libraries and dive deep into the Clojure language, then this book is ideal for you. Prior knowledge of the Clojure language is required. What You Will Learn Maximize the impact of parallelization, functional composition, and process transformation by composing reducers and transducers Process and manipulate data using sequences, reducers, and transducers in Clojure Modify and add features to the Clojure language using macros Explore the features of category theory and custom data sources for logic programming in Clojure Orchestrate parallelism and concurrency using built-in primitives as well as community

libraries in Clojure Handle data with asynchronous and reactive programming methodologies and leverage it using the core.async library Test your code with unit tests, specs, and type checks to write testable code Troubleshoot and style your Clojure code to make it more maintainable In Detail Clojure is a general-purpose language from the Lisp family with an emphasis on functional programming. It has some interesting concepts and features such as immutability, gradual typing, thread-safe concurrency primitives, and macro-based metaprogramming, which makes it a great choice to create modern, performant, and scalable applications. Mastering Clojure gives you an insight into the nitty-gritty details and more advanced features of the Clojure programming language to create more scalable, maintainable, and elegant applications. You'll start off by learning the details of sequences, concurrency primitives, and macros. Packed with a lot of examples, you'll get a walkthrough on orchestrating concurrency and parallelism, which will help you understand Clojure reducers, and we'll walk through composing transducers so you know about functional composition and process transformation inside out. We also explain how reducers and transducers can be used to handle data in a more performant manner. Later on, we describe how Clojure also supports other programming paradigms such as pure functional programming and logic

programming. Furthermore, you'll level up your skills by taking advantage of Clojure's powerful macro system. Parallel, asynchronous, and reactive programming techniques are also described in detail. Lastly, we'll show you how to test and troubleshoot your code to speed up your development cycles and allow you to deploy the code faster. Style and approach This is an easy-to-follow project-based guide that throws you directly into the excitement of Clojure code. Mastering Clojure is for anyone who is interested in expanding their knowledge of language features and advanced functional programming. ????Tim Peierls?Joshua Bloch?Joseph Bowbeer?David Holmes?Doug Lea Start building powerful apps that take advantage of the dynamic scripting capabilities of the Groovy language, including what's new in Groovy version 3.0. This book covers Groovy fundamentals, such as installing Groovy, using Groovy tools, and working with the Groovy Development Kit (GDK). You'll also learn more advanced aspects of Groovy, such as using Groovy design patterns, writing DSLs in Groovy, and taking advantage of Groovy's functional programming features. Also, Learning Groovy 3 has been updated to Groovy 3.0 to include the new Parrot parser which was extended to support additional syntax options and language features. It also includes coverage of Groovydoc, which allows you to embed Groovydoc comments in various ways.

And, this book covers how Groovy supports Java type annotations and more. There is more to Groovy than the core language, so Learning Groovy 3, Second Edition covers the extended Groovy ecosystem. You'll see how to harness Gradle (Groovy's build system), Grails (Groovy's web application framework), Spock (Groovy's testing framework), and Ratpack (Groovy's reactive web library). What You Will Learn Grasp Groovy fundamentals, including the GDK Master advanced Groovy, such as writing Groovy DSLs Discover functional programming in Groovy Work with GPars, the built-in concurrency library Use Gradle, the build system Master Grails, the web application framework Work with Spock, the testing framework Harness Ratpack, the reactive web library Who This Book Is For Those with a Java background, though anyone with basic programming skills can benefit from it. This book is a data-filled, yet easy-to-digest tour of the Groovy language and ecosystem.

Unlock the powers of functional programming hidden within JavaScript to build smarter, cleaner, and more reliable web apps About This Book Write powerful code with the high-level functions that JavaScript offers Discover what functional programming is, why it's effective, and how it's used in JavaScript Understand and optimize JavaScript's hidden potential as a true functional language Who This Book Is For If you are a JavaScript developer interested in learning functional

programming, looking for the quantum leap toward mastering the JavaScript language, or just want to become a better programmer in general, then this book is ideal for you. This guide is aimed at programmers, involved in developing reactive frontend apps, server-side apps that wrangle with reliability and concurrency, and everything in between. What You Will Learn Get a run through of the basic JavaScript language constructs Code using the powerful object-oriented feature in JavaScript Master DOM manipulation, cross-browser strategies, and ES6 Understand the basic concurrency constructs in Javascript and best performance strategies Harness the power of patterns for tasks ranging from application building to code testing Build large-scale apps seamlessly with the help of reactive patterns Explore advanced design patterns, including dependency injection Develop more powerful applications with currying and function composition Create more reliable code with closures and immutable data In Detail JavaScript is a high-level, dynamic, untyped, lightweight, and interpreted programming language and functional programming is a style that emphasizes and enables smarter code that minimizes complexity and increases modularity. It's a way of writing cleaner code through clever ways of mutating, combining, and using functions. And JavaScript provides an excellent medium for this approach. By learning how to expose JavaScript's true identity as a functional language, we can implement web apps that are more powerful, easier to maintain and more reliable. The java script: Functional Programming for JavaScript

Developers course will take you on a journey to show how functional programming when combined with other techniques makes JavaScript programming more efficient. The first module Mastering JavaScript, stress on practical aspects of Javascript development like—Functions and Closures, Runtime debugging techniques, project layout, events and DOM processing, build tools, Object-oriented patterns, isomorphism—everything that a modern Javascript project would need. The second module, Mastering JavaScript Design Patterns - Second Edition, will explore how design patterns can help you improve and organize your JavaScript code. You'll get to grips with creational, structural, and behavioral patterns as you discover how to put them to work in different scenarios. This updated edition will also delve into reactive design patterns and microservices as they are a growing phenomenon in the world of web development. It will also show you some advanced patterns, including dependency injection and live post processing. The third module, Functional Programming in JavaScript, will help you to write real-world applications by utilizing a wide range of functional techniques and styles. It explores the core concepts of functional programming common to all functional languages, with examples of their use in JavaScript. Style and approach This course will begin with providing insights and practical tips on advanced JavaScript features to build highly scalable web and mobile system and move on to some design patterns with JavaScript. Finally, the course ends with presenting the functional programming techniques and styles in JavaScript.

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Whether you are a Java expert or at a beginner level, you'll benefit from this book, because it will teach you a brand new way of coding and thinking. The book starts with an explanation of what reactive programming is, why it is so appealing, and how we can integrate it in to Java. It continues by introducing the new Java 8 syntax features, such as lambdas and function references, and some functional programming basics. From this point on, the book focuses on RxJava in depth. It goes through creating Observables, transforming, filtering, and combining them, and concurrency and testing to finish with extending the library itself. This book is a definite tutorial in RxJava filled with a lot of well-described examples. It explains reactive programming concepts in plain and readable language, without scientific formulas and terms.

Master the art of implementing scalable microservices in your production environment with ease About This Book Use domain-driven design to build microservices Use Spring Cloud to use Service Discovery and Registeration Use Kafka, Avro and Spring Streams for implementing event based microservices Who This Book Is For This book is for Java developers who are familiar with the microservices architecture and now wants to take a deeper dive into effectively implementing microservices at an enterprise level. A reasonable knowledge level and understanding of core microservice elements and applications is expected. What You Will Learn Use domain-driven design to design and implement

microservices Secure microservices using Spring Security Learn to develop REST service development Deploy and test microservices Troubleshoot and debug the issues faced during development Learning best practices and common principals about microservices In Detail Microservices are the next big thing in designing scalable, easy-to-maintain applications. It not only makes app development easier, but also offers great flexibility to utilize various resources optimally. If you want to build an enterprise-ready implementation of the microservices architecture, then this is the book for you! Starting off by understanding the core concepts and framework, you will then focus on the high-level design of large software projects. You will gradually move on to setting up the development environment and configuring it before implementing continuous integration to deploy your microservice architecture. Using Spring security, you will secure microservices and test them effectively using REST Java clients and other tools like RxJava 2.0. We'll show you the best patterns, practices and common principals of microservice design and you'll learn to troubleshoot and debug the issues faced during development. We'll show you how to design and implement reactive microservices. Finally, we'll show you how to migrate a monolithic application to microservices based application. By the end of the book, you will know how to build smaller, lighter, and faster services that can be implemented easily in a production environment. Style and approach This book starts from the basics, including environment setup and provides easy-to-follow steps to implement the sample project using

microservices.

With over 75 million downloads per month, Spring Boot is the most widely used Java framework available. Its ease and power have revolutionized application development from monoliths to microservices. Yet Spring Boot's simplicity can also be confounding. How do developers learn enough to be productive immediately? This practical book shows you how to use this framework to write successful mission-critical applications. Mark Heckler from VMware, the company behind Spring, guides you through Spring Boot's architecture and approach, covering topics such as debugging, testing, and deployment. If you want to develop cloud native Java or Kotlin applications with Spring Boot rapidly and effectively--using reactive programming, building APIs, and creating database access of all kinds--this book is for you. Learn how Spring Boot simplifies cloud native application development and deployment Build reactive applications and extend communication across the network boundary to create distributed systems Understand how Spring Boot's architecture and approach increase developer productivity and application portability Deploy Spring Boot applications for production workloads rapidly and reliably Monitor application and system health for optimal performance and reliability Debug, test, and secure cloud-based applications painlessly

Expand your boundaries by creating applications empowered with real-time data using RxJs without compromising performance About This Book Handle an infinite stream of incoming data using RxJs without going

crazy Explore important RxJs operators that can help you improve your code readability Get acquainted with the different techniques and operators used to handle data traffic, which occurs when you receive data faster than you can process Who This Book Is For If you're a web developer with some basic JavaScript programming knowledge who wants to implement the reactive programming paradigm with JavaScript, then this book is for you. What You Will Learn Get to know the basics of functional reactive programming using RxJs Process a continuous flow of data with linear memory consumption Filter, group, and react to changes in your system Discover how to deal with data traffic Compose operators to create new operators and use them in multiple observables to avoid code repetition Explore transducers and see how they can improve your code readability Detect and recover from errors in observables using Retry and Catch operators Create your own reactive application: a real-time webchat In Detail If you're struggling to handle a large amount of data and don't know how to improve your code readability, then reactive programming is the right solution for you. It lets you describe how your code behaves when changes happen and makes it easier to deal with real-time data. This book will teach you what reactive programming is, and how you can use it to write better applications. The book starts with the basics of reactive programming, what Reactive Extensions is, and how can you use it in JavaScript along with some reactive code using Bacon. Next, you'll discover what an Observable and an Observer are and when to use them.You'll also find out

how you can query data through operators, and how to use schedulers to react to changes. Moving on, you'll explore the RxJs API, be introduced to the problem of data traffic (backpressure), and see how you can mitigate it. You'll also learn about other important operators that can help improve your code readability, and you'll see how to use transducers to compose operators. At the end of the book, you'll get hands-on experience of using RxJs, and will create a real-time web chat using RxJs on the client and server, providing you with the complete package to master RxJs. Style and approach This easy-to-follow guide is full of hands-on examples of reactive programming. Each topic is explained and placed in context, and for the more inquisitive there are more details of the concepts used, ending with an application using the concepts learned through the book.

Over 100 hands-on recipes to build web applications easily and efficiently IN Spring 5.0 About This Book Solve real-world problems using the latest features of the Spring framework like Reactive Streams and the Functional Web Framework. Learn how to use dependency injection and aspect-oriented programming to write compartmentalized and testable code. Understand when to choose between Spring MVC and Spring Web Reactive for your projects Who This Book Is For Java developers who would like to gain in-depth knowledge of how to overcome problems that they face while developing great Spring applications. It will also cater to Spring enthusiasts, users and experts who need an arena for comparative analysis, new ideas and

inquiries on some details regarding Spring 5.0 and its previous releases. A basic knowledge of Spring development is essential What You Will Learn Understand how functional programming and concurrency in JDK 1.9 works, and how it will affect Spring 5.0 Learn the importance and application of reactive programming in creating services, and also the process of creating asynchronous MVC applications Implement different Spring Data modules Integrate Spring Security to the container Create applications and deploy using Spring Boot Conceptualize the architecture behind Microservices and learn the details of its implementation Create different test cases for the components of Spring 5.0 components In Detail The Spring framework has been the go-to framework for Java developers for quite some time. It enhances modularity, provides more readable code, and enables the developer to focus on developing the application while the underlying framework takes care of transaction APIs, remote APIs, JMX APIs, and JMS APIs. The upcoming version of the Spring Framework has a lot to offer, above and beyond the platform upgrade to Java 9, and this book will show you all you need to know to overcome common to advanced problems you might face. Each recipe will showcase some old and new issues and solutions, right from configuring Spring 5.0 container to testing its components. Most importantly, the book will highlight concurrent processes, asynchronous MVC and reactive programming using Reactor Core APIs. Aside from the core components, this book will also include integration of third-party technologies that are mostly

needed in building enterprise applications. By the end of the book, the reader will not only be well versed with the essential concepts of Spring, but will also have mastered its latest features in a solution-oriented manner. Style and Approach This book follows a cookbook style approach, presenting a problem and showing you how to overcome it with useful recipes. The examples provided will help you code along as you learn.

The two-volume set LNCS 8802 and LNCS 8803 constitutes the refereed proceedings of the 6th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation, ISoLA 2014, held in Imperial, Corfu, Greece, in October 2014. The total of 67 full papers was carefully reviewed and selected for inclusion in the proceedings. Featuring a track introduction to each section, the papers are organized in topical sections named: evolving critical systems; rigorous engineering of autonomic ensembles; automata learning; formal methods and analysis in software product line engineering; model-based code generators and compilers; engineering virtualized systems; statistical model checking; risk-based testing; medical cyber-physical systems; scientific workflows; evaluation and reproducibility of program analysis; processes and data integration in the networked healthcare; semantic heterogeneity in the formal development of complex systems. In addition, part I contains a tutorial on automata learning in practice; as well as the preliminary manifesto to the LNCS Transactions on the Foundations for Mastering Change with several position papers. Part II contains information

on the industrial track and the doctoral symposium and poster session.