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Java 9 Write Reactive Modular
Concurrent And Secure Code

Mastering Java 9 Write Reactive Modular Concurrent And Secure Code

Explains how to use Java's portable platforms to program and use threads effectively and efficiently while avoiding common mistakes

Update your Java knowledge with the latest features of Java 11, such as the low-Overhead Garbage Collector, Local-Variable Syntax for Lambda Parameters, and Dynamic Class-File Constants Key Features Explore the latest

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features in Java 9, Java 10, and Java 11 Enhance your Java application development and migration approaches Full coverage of modular Java applications, G1 Garbage Collector, JMH Book Description Java 11 is a long-term release and its new features add to the richness of the language. It emphasizes variable-type inference, performance improvements, along with simplified multithreading. The Java platform has a special emphasis on modularity, making this the programming platform of choice for millions of developers. The modern Java platform can

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be used to build robust software applications, including enterprise-level and mobile applications.

Fully updated for Java 11, this book stands to help any Java developer enjoy the richness of the Java programming language.

Mastering Java 11 is your one-stop guide to fully understanding recent Java platform updates. It contains detailed explanations of the recent features introduced in Java 9, Java 10, and Java 11 along with obtaining practical guidance on how to apply the new features. As you make your way through the chapters, you'll discover further information on the developments of the Java

platform and learn about the changes introduced by the variable handles and Project Coin, along with several enhancements in relation to import statements processing. In the concluding chapters, you'll learn to improve your development productivity, making your applications more efficient. You'll also be able to get to grips with the command-line flags with respect to various utilities and the command-line utility changes featured in the current Java platform. By the end of the book, you'll have obtained an advanced level understanding of the Java platform and its

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recent changes. What you will learn

- Write modular Java applications
- Migrate existing Java applications to modular ones
- Understand how the default G1 garbage collector works
- Leverage the possibilities provided by the newly introduced Java Shell
- Performance test your application effectively with the JVM harness
- Learn how Java supports the HTTP 2.0 standard
- Find out how to use the new Process API
- Explore the additional enhancements and features of Java 9, 10, and 11

Who this book is for Mastering Java 11 is for experienced Java developers with a solid

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understanding of the Java language and want to progress to an advanced level.

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

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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

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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

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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,

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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. Summary Manning's bestselling Java 8 book has been revised for Java 9! In Modern Java in

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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

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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
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Java

Creating Asynchronous, Event-
Based Applications

Reactive Programming in Kotlin

Mastering Reactive JavaScript

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Design and build non-blocking,
asynchronous Kotlin applications
with RXKotlin, Reactor-Kotlin,
Android, and Spring
Mastering Microservices with
Java 9

Java 9 Cookbook

**Update your Java knowledge with
the latest features of Java 11, such
as the low-Overhead Garbage
Collector, Local-Variable Syntax for
Lambda Parameters, and Dynamic
Class-File Constants Key Features
Explore the latest features in Java
9,Java 10, and Java 11 Enhance
your Java application development
and migration approaches Full
coverage of modular Java
applications, G1 Garbage Collector,
JMH Book Description Java 11 is a
long-term release and its new**

features add to the richness of the language. It emphasizes variable-type inference, performance improvements, along with simplified multithreading. The Java platform has a special emphasis on modularity, making this the programming platform of choice for millions of developers. The modern Java platform can be used to build robust software applications, including enterprise-level and mobile applications. Fully updated for Java 11, this book stands to help any Java developer enjoy the richness of the Java programming language. Mastering Java 11 is your one-stop guide to fully understanding recent Java platform updates. It contains detailed explanations of the recent features introduced in Java 9, Java 10, and

Java 11 along with obtaining practical guidance on how to apply the new features. As you make your way through the chapters, you'll discover further information on the developments of the Java platform and learn about the changes introduced by the variable handles and Project Coin, along with several enhancements in relation to import statements processing. In the concluding chapters, you'll learn to improve your development productivity, making your applications more efficient. You'll also be able to get to grips with the command-line flags with respect to various utilities and the command-line utility changes featured in the current Java platform. By the end of the book, you'll have obtained an advanced level understanding of

the Java platform and its recent changes. What you will learn Write modular Java applications Migrate existing Java applications to modular ones Understand how the default G1 garbage collector works Leverage the possibilities provided by the newly introduced Java Shell Performance test your application effectively with the JVM harness Learn how Java supports the HTTP 2.0 standard Find out how to use the new Process API Explore the additional enhancements and features of Java 9, 10, and 11 Who this book is for Mastering Java 11 is for experienced Java developers with a solid understanding of the Java language and want to progress to an advanced level. Mastering advanced features of Java and implement them to build

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amazing projects Key Features

Take advantage of Java's new modularity features to write real-world applications that solve a variety of problems Explore the major concepts introduced with Java 9, including modular programming, HTTP 2.0, API changes, and more Get to grips with tools, techniques and best practices to enhance application development Book Description

Java 9 and its new features add to the richness of the language; Java is one of the languages most used by developers to build robust software applications. Java 9 comes with a special emphasis on modularity with its integration with Jigsaw. This course is your one-stop guide to mastering the language. You'll be provided with

an overview and explanation of the new features introduced in Java 9 and the importance of the new APIs and enhancements. Some new features of Java 9 are ground-breaking; if you are an experienced programmer, you will be able to make your enterprise applications leaner by learning these new features. You'll be provided with practical guidance in applying your newly acquired knowledge of Java 9 and further information on future developments of the Java platform. This course will improve your productivity, making your applications faster. Next, you'll go on to implement everything you've learned by building 10 cool projects. You will learn to build an email filter that separates spam messages from all your inboxes, a

social media aggregator app that will help you efficiently track various feeds, and a microservice for a client/server note application, to name just a few. By the end of this course, you will be well acquainted with Java 9 features and able to build your own applications and projects. This Learning Path contains the best content from the following two recently published Packt products:

- **Mastering Java 9**
- **Java 9 Programming Blueprints**

What you will learn

- Package Java applications as modules using the Java Platform Module System
- Implement process management in Java using the all-new process handling API
- Integrate your applications with third-party services in the cloud
- Interact with

mail servers, using JavaMail to build an application that filters spam messages Use JavaFX to build rich GUI-based applications, which are an essential element of application development Leverage the possibilities provided by the newly introduced Java shell Test your application's effectiveness with the JVM harness See how Java 9 provides support for the HTTP 2.0 standard Who this book is for This learning path is for Java developers who are looking to move a level up and learn how to build robust applications in the latest version of Java. Explore the reactive system and create efficient microservices with Spring Boot 2.1 and Spring Cloud Key Features Understand the kind of system modern businesses

require with Spring Gain deeper insights into reactive programming with Reactor and Spring Cloud Get in-depth knowledge on asynchronous and nonblocking communication with Spring 5 WebFlux Book Description These days, businesses need a new type of system that can remain responsive at all times. This is achievable with reactive programming; however, the development of these kinds of systems is a complex task, requiring a deep understanding of the domain. In order to develop highly responsive systems, the developers of the Spring Framework came up with Project Reactor. Hands-On Reactive Programming in Spring 5 begins with the fundamentals of Spring

Reactive programming. You'll explore the endless possibilities of building efficient reactive systems with the Spring 5 Framework along with other tools such as WebFlux and Spring Boot. Further on, you'll study reactive programming techniques and apply them to databases and cross-server communication. You will advance your skills in scaling up Spring Cloud Streams and run independent, high-performant reactive microservices. By the end of the book, you will be able to put your skills to use and get on board with the reactive revolution in Spring 5.1! What you will learn Discover the difference between a reactive system and reactive programming Explore the benefits of a reactive system and

understand its applications Get to grips with using reactive programming in Spring 5 Gain an understanding of Project Reactor Build a reactive system using Spring 5 and Project Reactor Create a highly efficient reactive microservice with Spring Cloud Test, monitor, and release reactive applications Who this book is for This book is for Java developers who use Spring to develop their applications and want to build robust and reactive applications that can scale in the cloud. Basic knowledge of distributed systems and asynchronous programming will help you understand the concepts covered in this book. Understand Gang of Four, architectural, functional, and reactive design patterns and how

to implement them on modern Java platforms, such as Java 12 and beyond Key Features Learn OOP, functional, and reactive patterns for creating readable and maintainable code Explore architectural patterns and practices for building scalable and reliable applications Tackle all kinds of performance-related issues and streamline development using design patterns Book Description Java design patterns are reusable and proven solutions to software design problems. This book covers over 60 battle-tested design patterns used by developers to create functional, reusable, and flexible software. Hands-On Design Patterns with Java starts with an introduction to the Unified Modeling Language (UML), and delves into class and

object diagrams with the help of detailed examples. You'll study concepts and approaches to object-oriented programming (OOP) and OOP design patterns to build robust applications. As you advance, you'll explore the categories of GOF design patterns, such as behavioral, creational, and structural, that help you improve code readability and enable large-scale reuse of software. You'll also discover how to work effectively with microservices and serverless architectures by using cloud design patterns, each of which is thoroughly explained and accompanied by real-world programming solutions. By the end of the book, you'll be able to speed up your software development process using the right design

patterns, and you'll be comfortable working on scalable and maintainable projects of any size. What you will learn Understand the significance of design patterns for software engineering Visualize software design with UML diagrams Strengthen your understanding of OOP to create reusable software systems Discover GOF design patterns to develop scalable applications Examine programming challenges and the design patterns that solve them Explore architectural patterns for microservices and cloud development Who this book is for If you are a developer who wants to learn how to write clear, concise, and effective code for building production-ready applications, this book is for you. Familiarity with the

fundamentals of Java is assumed.

**Patterns and Practices for
Developing Maintainable
Applications**

Mastering Java 9

Mastering Concurrency

Programming with Java 9

Functional Reactive Programming

Java 9 Concurrency Cookbook

Effective Java

Get an easy introduction to reactive streams in Java to handle concurrency, data streams, and the propagation of change in today's applications. This compact book includes in-depth introductions to RxJava, Akka Streams, and Reactor, and integrates the latest related features from Java 9 and 11, as well as reactive streams programming with the Android SDK. Reactive Streams in Java explains how to manage the

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exchange of stream data across an asynchronous boundary—passing elements on to another thread or thread-pool—while ensuring that the receiving side is not forced to buffer arbitrary amounts of data which can reduce application efficiency. After reading and using this book, you'll be proficient in programming reactive streams for Java in order to optimize application performance, and improve memory management and data exchanges. What You Will Learn Discover reactive streams and how to use them Work with the latest features in Java 9 and Java 11 Apply reactive streams using RxJava Program using Akka Streams Carry out reactive streams programming in Android Who This Book Is For Experienced Java programmers. Build fault-tolerant, robust, and

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distributed applications in Scala Key Features - Understand and use the concepts of reactive programming to build distributed systems running on multiple nodes. - Learn how reactive architecture reduces complexity throughout the development process. - Get to grips with functional reactive programming and Reactive Microservices. Book Description Reactive programming is a scalable, fast way to build applications, and one that helps us write code that is concise, clear, and readable. It can be used for many purposes such as GUIs, robotics, music, and others, and is central to many concurrent systems. This book will be your guide to getting started with Reactive programming in Scala. You will begin with the fundamental concepts of Reactive programming and gradually

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move on to working with asynchronous data streams. You will then start building an application using Akka Actors and extend it using the Play framework. You will also learn about reactive stream specifications, event sourcing techniques, and different methods to integrate Akka Streams into the Play Framework. This book will also take you one step forward by showing you the advantages of the Lagom framework while working with reactive microservices. You will also learn to scale applications using multi-node clusters and test, secure, and deploy your microservices to the cloud. By the end of the book, you will have gained the knowledge to build robust and distributed systems with Scala and Akka. What you will learn Understand the fundamental

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principles of Reactive and Functional programming Develop applications utilizing features of the Akka framework Explore techniques to integrate Scala, Akka, and Play together Learn about Reactive Streams with real-time use cases Develop Reactive Web Applications with Play, Scala, Akka, and Akka Streams Develop and deploy Reactive microservices using the Lagom framework and ConductR Who this book is for This book is for Scala developers who would like to build fault-tolerant, scalable distributed systems. No knowledge of Reactive programming is required. 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

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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.

Learn how to build scalable, resilient, and effective applications in Java that

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suit your software requirements. Key Features Explore advanced technologies that Java 11 delivers such as web programming and parallel computing Discover modern programming paradigms such as microservices, cloud computing and enterprise structures Build highly responsive applications with this practical introduction to Reactive programming Book Description Java is one of the most commonly used software languages by programmers and developers. In this book, you ' ll learn the new features of Java 11 quickly and experience a simple and powerful approach to software development. You ' ll see how to use the Java runtime tools, understand the Java environment, and create a simple namesorting Java application. Further on, you'll learn about

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advanced technologies that Java delivers, such as web programming and parallel computing, and will develop a mastermind game. Moving on, we provide more simple examples, to build a foundation before diving into some complex data structure problems that will solidify your Java 11 skills. With a special focus on the features of new projects: Project Valhalla, Project Panama, Project Amber, and Project Loom, this book will help you get employed as a top-notch Java developer. By the end of the book, you ' ll have a firm foundation to continue your journey toward becoming a professional Java developer. What you will learn

- Compile, package, and run a program using a build management tool
- Get to know the principles of test-driven development
- Separate the wiring of

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multiple modules from application logic Use Java annotations for configuration Master the scripting API built into the Java language Understand static versus dynamic implementation of code Who this book is for This book is for anyone who wants to learn the Java programming language. No programming experience required. If you have prior experience, it will help you through the book more easily.

Java 9 High Performance
Master advanced Java features and implement them to build amazing projects

The Java Module System
Reactive Programming with Kotlin (Second Edition)
Hands-On Reactive Programming with Reactor
Getting Started with Unity 5

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Java in a Nutshell, Deluxe Edition is a Java programmer's dream come true in one small package. The heart of this Deluxe Edition is the Java Reference Library on CD-ROM, which brings together five volumes for Java developers and programmers, linking related info across books. It includes: Exploring Java, 2nd Edition, Java Language Reference, 2nd Edition, Java Fundamental Classes Reference, Java AWT Reference, and Java in a Nutshell, 2nd Edition, included both on the CD-ROM and in a companion desktop edition. Java in a Nutshell, Deluxe Edition is an

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indispensable resource for anyone doing serious programming with Java 1.1. The Java Reference Library alone is also available by subscription on the World Wide Web. Please see <http://online-books.oreilly.com/books/javaref/> for details. The electronic text on the Web and on the CD is fully searchable and includes a complete index to all five volumes. It also includes the sample code found in the printed volumes. Exploring Java, 2nd Edition introduces the basics of Java 1.1 and offers a clear, systematic overview of the language. It covers the essentials of hot topics like Beans and RMI,

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as well as writing applets and other applications, such as networking programs, content and protocol handlers, and security managers. The Java Language Reference, 2nd Edition is a complete reference that describes all aspects of the Java language, including syntax, object-oriented programming, exception handling, multithreaded programming, and differences between Java and C/C++. The second edition covers the new language features that have been added in Java 1.1, such as inner classes, class literals, and instance initializers. The Java Fundamental Classes

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Reference provides complete reference documentation on the core Java 1.1 classes that comprise the `java.lang`, `java.io`, `java.net`, `java.util`, `java.text`, `java.math`, `java.lang.reflect`, and `java.util.zip` packages. These classes provide general-purpose functionality that is fundamental to every Java application. The Java AWT Reference provides complete reference documentation on the Abstract Window Toolkit (AWT), a large collection of classes for building graphical user interfaces in Java. Java in a Nutshell, 2nd Edition, the bestselling book on Java and the one

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most often recommended on the Internet, is a complete quick-reference guide to Java, containing descriptions of all of the classes in the Java 1.1 core API, with a definitive listing of all methods and variables, with the exception of the still-evolving Enterprise APIs. These APIs will be covered in a future volume. Highlights of the library include: History and principles of Java How to integrate applets into the World Wide Web A detailed look into Java's style of object-oriented programming Detailed coverage of all the essential classes in java.lan

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g, java.io, java.util, java.net
, java.awt Using threads
Network programming Content
and protocol handling A
detailed explanation of
Java's image processing
mechanisms Material on
graphics primitives and
rendering techniques Writing
a security manager System
requirements: The CD-ROM is
readable on all Windows and
UNIX platforms. Current
implementations of the Java
Virtual Machine for the Mac
platform do not support the
Java search applet in this
CD-ROM. Mac users can
purchase the World Wide Web
version (see <http://online-books.oreilly.com/books/javaref/> for more information). A

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Web browser that supports HTML 3.2, Java, and JavaScript, such as Netscape 3.0 or Internet Explorer 3.0, is required.

A definitive guide to learning the key concepts of modern application

development in Java

About 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

9 Who This Book Is For The book is for intermediate to advanced Java programmers who want to quickly try out the new features of Java

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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 applications

In Detail Java is an object-oriented programming language. It is

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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

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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.

Microservices and big-data increasingly confront us with the limitations of traditional input/output. In traditional IO, work that is IO-bound dominates threads. This wouldn't be such a big deal if we could add more

threads cheaply, but threads are expensive on the JVM, and most other platforms. Even if threads were cheap and infinitely scalable, we'd still be confronted with the faulty nature of networks. Things break, and they often do so in subtle, but non-exceptional ways. Traditional approaches to integration bury the faulty nature of networks behind overly simplifying abstractions. We need something better. Join Spring Developer Advocate Josh Long for an introduction to reactive programming in the Spring ecosystem, leveraging the reactive streams specification, Reactor,

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Spring Boot, Spring Cloud
and so much more. This book
will cover important
concepts in reactive
programming including
project Reactor and the
reactive streams
specification, data access,
web programming, RPC with
protocols like RSocket,
testing, and integration and
composition, and more.
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

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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

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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

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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

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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.

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Simplify the development of lightning fast applications based on microservices and reactive programming
Learn design patterns that enable the building of large-scale software architectures
Learning Spring Boot 2.0
Practical techniques and best practices for optimizing Java applications through concurrency, reactive programming, and more
Concurrency with RxJava, Reactor, and Akka Streams
Reactive Programming with RxJava

Discover how project Reactor enhances the reactive programming paradigm and

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allows you to build scalable asynchronous applications
Key Features Use reactive APIs, Flux, and Mono to implement reactive extensions Create concurrent applications without the complexity of Java's concurrent API Understand techniques to implement event-driven and reactive applications

Book Description Reactor is an implementation of the Java 9 Reactive Streams specification, an API for asynchronous data processing. This specification is based on a reactive

programming paradigm, enabling developers to build enterprise-grade, robust applications with reduced complexity and in less time. Hands-On Reactive Programming with Reactor shows you how Reactor works, as well as how to use it to develop reactive applications in Java. The book begins with the fundamentals of Reactor and the role it plays in building effective applications. You will learn how to build fully non-blocking applications and will later be guided by the Publisher and Subscriber

APIs. You will gain an understanding how to use two reactive composable APIs, Flux and Mono, which are used extensively to implement Reactive Extensions. All of these components are combined using various operations to build a complete solution. In addition to this, you will get to grips with the Flow API and understand backpressure in order to control overruns. You will also study the use of Spring WebFlux, an extension of the Reactor framework for building microservices. By

the end of the book, you will have gained enough confidence to build reactive and scalable microservices. What you will learn
Explore benefits of the Reactive paradigm and the Reactive Streams API
Discover the impact of Flux and Mono implications in
Reactor
Expand and repeat data in stream processing
Get to grips with various types of processors and choose the best one
Understand how to map errors to make corrections easier
Create robust tests using testing utilities offered

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by ReactorFind the best way to schedule the execution of codeWho this book is for If you're looking to develop event- and data-driven applications easily with Reactor, this book is for you. Sound knowledge of Java fundamentals is necessary to understand the concepts covered in the book.

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

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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.*

*Reactive systems and event-
driven architecture are
becoming indispensable to
application design, and
companies are taking note.*

*Reactive systems ensure
that applications are
responsive, resilient, and
elastic no matter what
failures or errors may be*

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occurring, while event-driven architecture offers a flexible and composable option for distributed systems. This practical book helps Java developers bring these approaches together using Quarkus 2.x, the Kubernetes-native Java framework. Clement Escoffier and Ken Finnigan show you how to take advantage of event-driven and reactive principles to build robust distributed systems, reducing latency and increasing throughput, particularly in microservices and serverless applications.

You'll also get a foundation in Quarkus to help you create true Kubernetes-native applications for the cloud. Understand the fundamentals of reactive systems and event-driven architecture Learn how to use Quarkus to build reactive applications Combine Quarkus with Apache Kafka or AMQP to build reactive systems Develop microservices that utilize messages with Quarkus for use in event-driven architectures Learn how to integrate external messaging systems, such as

*Apache Kafka, with Quarkus
Build applications with
Quarkus using reactive
systems and reactive
programming concepts
The upcoming Java 9 module
system will affect existing
applications and offer new
ways of creating modular
and maintainable
applications. With this hands-
on book, Java developers will
learn not only about the joys
of modularity, but also about
the patterns needed to
create truly modular and
reliable applications. Authors
Sander Mak and Paul Bakker
teach you the concepts*

behind the Java 9 module system, along with the new tools it offers. You'll also gain learn how to modularize existing code and how to build new Java applications in a modular way.

Understand Java 9 module system concepts Master the patterns and practices for building truly modular applications Migrate existing applications and libraries to Java 9 modules Use JDK 9 tools for modular development and migration Build reactive and scalable microservices using the Reactor framework

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*Scala Reactive Programming
Learn RX with Rxjava,
Rxkotlin and Rxandroid
Java 9 Modularity
Learning RxJava
Reactive Streams in Java*
**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 Registration 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. 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 Learn reactive programming using Java and its functional aspects, sometimes called

RxJava. This book shows you how to solve "callback hell" with RxJava and shows you how to write thread-safe code without hanging onto state variables which comes in handy for cloud computing software-as-a-service issues, especially when dealing with big data processes through streaming. Reactive Java Programming includes unique coverage of reactive Android programming, growing more and more popular in mobile development with the Cloud. After reading this guide to reactive programming, you'll be able to apply it to your own big data cloud applications

**that use Java. What You'll
Learn Use and map
observables Filter and
combine events Employ
subjects, schedulers, and
backpressure Handle reactive
patterns Test your RxJava code
Write your own operators
Carry out reactive Android
programming Who This Book Is
For Experienced Java
programmers new to reactive
programming and those who
may have some experience
with reactive programming
new to Java.**

**Summary Reactive Design
Patterns is a clearly written
guide for building message-
driven distributed systems**

that are resilient, responsive, and elastic. In this book you'll find patterns for messaging, flow control, resource management, and concurrency, along with practical issues like test-friendly designs. All patterns include concrete examples using Scala and Akka. Foreword by Jonas Bonér. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Modern web applications serve potentially vast numbers of users - and they need to keep working as servers fail and new ones

come online, users overwhelm limited resources, and information is distributed globally. A Reactive application adjusts to partial failures and varying loads, remaining responsive in an ever-changing distributed environment. The secret is message-driven architecture - and design patterns to organize it. About the Book Reactive Design Patterns presents the principles, patterns, and best practices of Reactive application design. You'll learn how to keep one slow component from bogging down others with the Circuit Breaker pattern, how to

shepherd a many-staged transaction to completion with the Saga pattern, how to divide datasets by Sharding, and more. You'll even see how to keep your source code readable and the system testable despite many potential interactions and points of failure. What's Inside The definitive guide to the Reactive Manifesto Patterns for flow control, delimited consistency, fault tolerance, and much more Hard-won lessons about what doesn't work Architectures that scale under tremendous load About the Reader Most examples use Scala, Java, and Akka. Readers

should be familiar with distributed systems. About the Author Dr. Roland Kuhn led the Akka team at Lightbend and coauthored the Reactive Manifesto. Brian Hanafée and Jamie Allen are experienced distributed systems architects.

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**applications Fault tolerance
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Learn how to implement Reactive Programming paradigms with Kotlin, and apply them to web programming with Spring Framework 5.0 and in Android Application Development. About This Book Learn how to solve blocking user experience with Reactive Programming and get deep insights into RxKotlin Integrate Reactive Kotlin with Spring and build fantastic Android Apps with RxKotlin and RxAndroid Build reactive architectures that reduce complexity throughout the development process and make your apps(web and Android) scalable Who This Book Is For This book is for Kotlin developers who would like to build fault-tolerant, scalable, and distributed systems. A basic knowledge of

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Kotlin is required, but no prior knowledge of reactive programming. What You Will Learn

Learn about reactive programming paradigms and how reactive programming can improve your existing projects Gain in-depth knowledge in RxKotlin 2.0 and the ReactiveX Framework Use RxKotlin with Android Create your own custom operators in RxKotlin Use Spring Framework 5.0 with Kotlin Use the reactor-kotlin extension Build Rest APIs with Spring, Hibernate, and RxKotlin Use testSubscriber to test RxKotlin applications Use backpressure management and Flowables In Detail In today's app-driven era, when programs are asynchronous, and responsiveness is so vital, reactive programming

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can help you write code that's more reliable, easier to scale, and better-performing. Reactive programming is revolutionary. With this practical book, Kotlin 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. You will begin with the general concepts of Reactive programming and then gradually move on to working with asynchronous data streams. You will dive into advanced techniques such as manipulating time in data-flow, customizing operators and provider and how to Use the concurrency model to control asynchronicity of code and process event handlers effectively.

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You will then be introduced to functional reactive programming and will learn to apply FRP in practical use cases in Kotlin. This book will also take you one step forward by introducing you to spring 5 and spring boot 2 using Kotlin. By the end of the book, you will be able to build real-world applications with reactive user interfaces as well as you'll learn to implement reactive programming paradigms in Android. Style and Approach Loaded with numerous code examples and real-life projects, this book helps you delve into Reactive Programming with Kotlin, and apply it to real-world Spring-web and Android projects, thus making all your apps reactive. This book concisely introduces Java 8's most valuable new

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features, including lambda expressions (closures) and streams. If you're an experienced Java programmer, the author's practical insights and sample code will help you quickly take advantage of these and other Java language and platform improvements.

If you are a game developer interested in learning Unity 3D from scratch and becoming familiar with its core features, then this book is for you. No prior knowledge of Unity 3D is required. 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

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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

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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

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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

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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 modular and secure Java applications using concurrency and advanced JDK libraries, 2nd Edition

Learn the fundamentals of Java 11 programming by building industry grade practical projects, 2nd Edition

Develop Modular and Secure Java Applications Using Concurrency and Advanced JDK Libraries, 2nd Edition

Reactive Programming with Java 9
Java Threads

Java Projects

Summary Java's much-awaited

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"Project Jigsaw" is finally here! Java 11 includes a built-in modularity framework, and *The Java Module System* is your guide to discovering it. In this new book, you'll learn how the module system improves reliability and maintainability, and how it can be used to reduce tight coupling of system components. Foreword by Kevlin Henney. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. You'll find registration instructions inside the print book. About the Technology Packaging code into neat, well-defined units makes it easier to deliver safe and reliable applications. The Java Platform Module System is a language standard for creating these units. With modules, you can closely control how JARs interact and easily identify any missing dependencies at

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startup. This shift in design is so fundamental that starting with Java 9, all core Java APIs are distributed as modules, and libraries, frameworks, and applications will benefit from doing the same. About the Book The Java Module System is your in-depth guide to creating and using Java modules. With detailed examples and easy-to-understand diagrams, you'll learn the anatomy of a modular Java application. Along the way, you'll master best practices for designing with modules, debugging your modular app, and deploying to production. What's inside

- The anatomy of a modular Java app
- Building modules from source to JAR
- Migrating to modular Java
- Decoupling dependencies and refining APIs
- Handling reflection and versioning
- Customizing runtime images

Updated for Java 11 About the Reader Perfect

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for developers with some Java experience. About the Author Nicolai Parlog is a developer, author, speaker, and trainer. His home is codefx.org.

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what's not Customizing runtime images with jlink Putting the pieces together Gain a deep understanding of the complexity of data structures and algorithms and discover the right way to write more efficient code About This Book This book provides complete coverage of reactive and functional data structures Based on the latest version of Java 9, this book illustrates the impact of new features on data structures Gain exposure to important concepts such as Big-O Notation and Dynamic Programming Who This Book Is For This book is for Java developers who want to learn about data structures and algorithms. Basic knowledge of Java is assumed. What You Will Learn Understand the fundamentals of algorithms, data structures, and measurement of complexity Find out what general purpose data structures

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are, including arrays, linked lists, double ended linked lists, and circular lists Get a grasp on the basics of abstract data types—stack, queue, and double ended queue See how to use recursive functions and immutability while understanding and in terms of recursion Handle reactive programming and its related data structures Use binary search, sorting, and efficient sorting—quicksort and merge sort Work with the important concept of trees and list all nodes of the tree, traversal of tree, search trees, and balanced search trees Apply advanced general purpose data structures, priority queue-based sorting, and random access immutable linked lists Gain a better understanding of the concept of graphs, directed and undirected graphs, undirected trees, and much more In Detail Java 9 Data

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Structures and Algorithms covers classical, functional, and reactive data structures, giving you the ability to understand computational complexity, solve problems, and write efficient code. This book is based on the Zero Bug Bounce milestone of Java 9. We start off with the basics of algorithms and data structures, helping you understand the fundamentals and measure complexity. From here, we introduce you to concepts such as arrays, linked lists, as well as abstract data types such as stacks and queues. Next, we'll take you through the basics of functional programming while making sure you get used to thinking recursively. We provide plenty of examples along the way to help you understand each concept. You will get the also get a clear picture of reactive programming, binary searches, sorting,

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search trees, undirected graphs, and a whole lot more! Style and approach
This book will teach you about all the major algorithms in a step-by-step manner. Special notes on the Big-O Notation and its impact on algorithms will give you fresh insights.

Your road to becoming a Java Ninja begins here!
About This Book* Build highly scalable, fast, and secure applications* This book covers the major concepts introduced with the new version of Java 9, which includes modular programming, HTTP 2.0, API changes, and more* New concepts, commands, and terminology are explained in plain language and a step-by-step manner, making it easy to understand
Who This Book Is For This book is for enterprise developers and existing Java developers. Basic knowledge of Java would help.
What

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You Will Learn* Write modular Java applications in terms of the newly introduced module system* Migrate existing Java applications to modular ones* Understand how to use the G1 garbage collector in order to leverage the performance of your applications* Leverage the possibilities provided the newly introduced Java shell* Test your application's effectiveness with the JVM harness* See how Java 9 provides support for the http 2.0 standard* Use the new process API* Discover additional enhancements and features provided by Java 9

In DetailJava 9 and its new features add to the richness of the language, one of the languages most used by developers to build robust software applications. Java 9 comes with a special emphasis on modularity with its integration with Jigsaw. This is your one-stop guide to

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mastering the language. You'll be provided with an overview and explanation of the new features introduced in Java 9 and the importance of the new APIs and enhancements. Some of the new features of Java 9 are ground-breaking and if you are an experienced programmer, you will be able to make your enterprise application leaner by learning these new features. You'll be provided with practical guidance in applying the newly acquired knowledge in regards to Java 9 and further information on future developments of the Java platform. This book will improve your productivity, making your application faster. By learning the best practices in Java, you'll become the "go-to" person in your organization. By the end of the book, you'll not only know the important concepts of Java 9, but you'll

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also have a nuanced understanding of the important aspects of programming with this great language.

Build, test, and secure robust enterprise-grade applications using the Spring Framework

About This Book*

Build an enterprise application throughout the book that communicates with a microservice*

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 application

Who This Book Is For

This 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

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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

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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-

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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.

Build cloud-ready, reactive systems with Spring 5 and Project Reactor

Mastering Java 11

Java in a Nutshell

Java SE 8 for the Really Impatient
Reactive Systems in Java

Build scalable, functional reactive microservices with Akka, Play, and Lagom

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

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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

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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

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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. Expand your boundaries by creating applications empowered with real-time data using RxJs without compromising

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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

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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

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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.

Learn Reactive Programming in Kotlin with RxJava! The popularity of reactive

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programming continues to grow on an ever-increasing number of platforms and languages. Rx lets developers easily and quickly build apps with code that can be understood by other Rx developers—even over different platforms. Not only will you learn how to use RxJava to create complex reactive applications on Android, you'll also see how to solve common application design issues by using RxJava. Finally, you'll discover how to exercise full control over the library and leverage the full power of reactive programming in your apps. Who This Book Is For This book is for Android developers who already feel comfortable with the Android SDK and Kotlin, and want to dive deep into development with RxJava, RxKotlin, and RxAndroid. *Topics Covered in Reactive Programming with Kotlin: Getting Started: Get an introduction to the reactive programming paradigm, learn the terminology involved, and see how to begin*

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using RxJava in your projects. Event Management: Learn how to handle asynchronous event sequences via two key concepts in Rx-Observables and Observers. Being Selective: See how to work with various events using tools such as filtering, transforming, combining, and timing operators. UI Development: RxJava and companion libraries make it easy to work with the UI of your apps, providing a reactive approach to handling user events. Intermediate Topics: Level up your RxJava knowledge with chapters on reactive networking, error handling, and schedulers. Advanced Topics: Round out your RxJava education by learning about app architecture, repositories, and integrating RxJava with Android Jetpack. And much, much more! By the end of the book, you'll have hands-on experience solving common issues in a reactive paradigm-and you'll be well on

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your way to coming up with your own Rx patterns and solutions!

Are you looking for a deeper understanding of the Java™ programming language so that you can write code that is clearer, more correct, more robust, and more reusable?

Look no further! Effective Java™, Second Edition, brings together seventy-eight indispensable programmer's rules of thumb: working, best-practice solutions for the programming challenges you encounter every day. This highly anticipated new edition of the classic, Jolt Award-winning work has been thoroughly updated to cover Java SE 5 and Java SE 6 features introduced since the first edition. Bloch explores new design patterns and language idioms, showing you how to make the most of features ranging from generics to enums, annotations to autoboxing. Each chapter in the book consists of several "items" presented in the form of a short, standalone

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essay that provides specific advice, insight into Java platform subtleties, and outstanding code examples. The comprehensive descriptions and explanations for each item illuminate what to do, what not to do, and why. Highlights include: New coverage of generics, enums, annotations, autoboxing, the for-each loop, varargs, concurrency utilities, and much more Updated techniques and best practices on classic topics, including objects, classes, libraries, methods, and serialization How to avoid the traps and pitfalls of commonly misunderstood subtleties of the language Focus on the language and its most fundamental libraries: java.lang, java.util, and, to a lesser extent, java.util.concurrent and java.io Simply put, Effective Java™, Second Edition, presents the most practical, authoritative guidelines available for writing efficient, well-designed programs. Hands-On Reactive Programming in Spring

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*Java 9: Building Robust Modular
Applications*

*Learning Reactive Programming with Java
8*

*Hands-On Design Patterns with Java
Reactive Spring*

**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**

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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

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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. 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 RxJava Who This Book Is
For This book targets
existing Java developers who
want to understand Reactive
programming and build
responsive and resilient
asynchronous applications

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**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 Netflix that uses RxJava***
- Implement Reactive web applications using Spring Framework 5 and RxJavaIn**

Detail Reactive 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

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specification. 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 specification. From this point on, it focuses on RxJava 2.0, covering topics such as creating, transforming, filtering, 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

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will be fully equipped with the tools and techniques needed to implement robust, event-driven, Reactive applications. Style and approach This 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. Summary Functional Reactive Programming teaches the concepts and applications of FRP. It offers a careful walk-through of core FRP operations and introduces the concepts and techniques you'll need to use FRP in

any language. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Today's software is shifting to more asynchronous, event-based solutions. For decades, the Observer pattern has been the go-to event infrastructure, but it is known to be bug-prone. Functional reactive programming (FRP) replaces Observer, radically improving the quality of event-based code. About the Book Functional Reactive Programming teaches you how FRP works and how to use it. You'll begin by gaining an

understanding of what FRP is and why it's so powerful. Then, you'll work through greenfield and legacy code as you learn to apply FRP to practical use cases. You'll find examples in this book from many application domains using both Java and JavaScript. When you're finished, you'll be able to use the FRP approach in the systems you build and spend less time fixing problems. What's Inside Think differently about data and events FRP techniques for Java and JavaScript Eliminate Observer one listener at a time Explore Sodium, RxJS, and Kefir.js FRP systems About the Reader

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**Readers need intermediate
Java or JavaScript skills.
No experience with
functional programming or
FRP required. About the
Authors Stephen Blackheath
and Anthony Jones are
experienced software
developers and the creators
of the Sodium FRP library
for multiple languages.
Foreword by Heinrich
Apfelmus. Illustrated by
Duncan Hill. Table of
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Core FRP Some everyday
widget stuff Writing a real
application New concepts FRP
on the web Switch
Operational primitives
Continuous time Battle of
the paradigms Programming in**

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**the real world Helpers and
patterns Refactoring Adding
FRP to existing projects
Future directions
Mastering Java 9
Modern Java in Action
Reactive Design Patterns**