

Online Library Learning Rxjava
Reactive Concurrent And
Responsive Applications

Learning Rxjava Reactive Concurrent And Responsive Applications

Summary Gradle in Action is a comprehensive guide to end-to-end project automation with Gradle. Starting with the basics, this practical, easy-to-read book discusses how to build a full-fledged, real-world project. Along the way, it touches on advanced topics like testing, continuous integration, and monitoring code quality. You'll also explore tasks like setting up your target environment and deploying your software. About the Technology Gradle is a general-purpose build

automation tool. It extends the usage patterns established by its forerunners, Ant and Maven, and allows builds that are expressive, maintainable, and easy to understand. Using a flexible Groovy-based DSL, Gradle provides declarative and extendable language elements that let you model your project's needs the way you want. About the Book Gradle in Action is a comprehensive guide to end-to-end project automation with Gradle. Starting with the basics, this practical, easy-to-read book discusses how to establish an effective build process for a full-fledged, real-world project. Along the way, it covers advanced topics like testing, continuous integration, and monitoring code quality. You'll also explore tasks like setting up

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***your target environment and
deploying your software. The book
assumes a basic background in
Java, but no knowledge of Groovy.
Purchase of the print book includes
a free eBook in PDF, Kindle, and
ePub formats from Manning
Publications. Whats Inside A
comprehensive guide to Gradle
Practical, real-world examples
Transitioning from Ant and Maven
In-depth plugin development
Continuous delivery with Gradle
About the Author Benjamin
Muschko is a member of the
Gradleware engineering team and
the author of several popular Gradle
plugins. Table of Contents PART 1
INTRODUCING GRADLE
Introduction to project automation
Next-generation builds with Gradle
Building a Gradle project by***

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essentials Dependency

management Multiproject builds

Testing with Gradle Extending

Gradle Integration and migration

PART 3 FROM BUILD TO

DEPLOYMENT IDE support and

tooling Building polyglot projects

Code quality management and

monitoring Continuous integration

Artifact assembly and publishing

Infrastructure provisioning and

deployment

This book is a must-have tutorial for software developers aiming to write concurrent programs in Scala, or broaden their existing knowledge of concurrency. This book is intended for Scala programmers that have no prior knowledge about concurrent programming, as well as those

seeking to broaden their existing knowledge about concurrency. Basic knowledge of the Scala programming language will be helpful. Readers with a solid knowledge in another programming language, such as Java, should find this book easily accessible. Learn Reactive Programming in Swift with RxSwift!The popularity of reactive programming continues to grow on an every-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 the RxSwift port to create complex reactive applications on iOS, you'll also see how to easily solve common

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application design issues by using RxSwift. Finally you'll discover how to exercise full control over the library and leverage the full power of reactive programming in your apps. This book is for iOS developers who already feel comfortable with iOS and Swift, and want to dive deep into development with RxSwift. Topics Covered in RxSwift:- Getting Started: Get an introduction to the reactive programming paradigm, learn the terminology involved and see how to begin using RxSwift 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 concepts such as filtering, transforming,

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combining, and time operators.- UI Development: RxSwift makes it easy to work with UI of your apps using RXCocoa, which provides integration of both UIKit and Cocoa.- Intermediate Topics: Level up your RxSwift knowledge with chapters on reactive networking, multi-threading, and error handling.And much, much more!By the end of this book, you'll have hands-on experience solving common issues in a reactive paradigm - and you'll be well on your way to coming up with your own Rx patterns and solutions! 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

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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.

Gradle in Action

Reactive Spring

Reactive Java Programming

Reactive Programming with RxJS 5

Concurrent Patterns and Best Practices

Learning RxJava

Untangle Your Asynchronous JavaScript Code

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

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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.

Discover how project Reactor enhances the reactive programming paradigm and allows you to build scalable

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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

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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

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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 by Reactor

Find the best way to schedule the execution of code

Who 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

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understand the concepts covered in the book.

Summary Rx.NET in Action teaches developers how to build event-driven applications using the Reactive Extensions (Rx) library. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Modern applications must react to streams of data such as user and system events, internal messages, and sensor input. Reactive Extensions (Rx) is a .NET library containing more than 600 operators that you can compose together to build reactive client- and server-side applications to handle events asynchronously in a way that maximizes responsiveness, resiliency, and elasticity. About the

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Book Rx.NET in Action teaches developers how to build event-driven applications using the Rx library. Starting with an overview of the design and architecture of Rx-based reactive applications, you'll get hands-on with in-depth code examples to discover firsthand how to exploit the rich query capabilities that Rx provides and the Rx concurrency model that allows you to control both the asynchronicity of your code and the processing of event handlers. You'll also learn about consuming event streams, using schedulers to manage time, and working with Rx operators to filter, transform, and group events. What's Inside Introduction to Rx in C# Creating and consuming streams of data and events Building complex

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queries on event streams Error
handling and testing Rx code About the
Reader Readers should understand
OOP concepts and be comfortable
coding in C#. About the Author Tamir
Dresher is a senior software architect at
CodeValue and a prominent member of
Israel's Microsoft programming
community. Table of Contents PART 1
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REACTIVE EXTENSIONS Reactive
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Creating observables from .NET
asynchronous types Controlling the
observer-observable relationship
Controlling the observable temperature
Working with basic query operators
Partitioning and combining observables

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Working with Rx concurrency and synchronization Error handling and recovery APPENDIXES Writing asynchronous code in .NET The Rx Disposables library Testing Rx queries and operators

A comprehensive guide to get started with Java and gain insights into major concepts such as object-oriented, functional, and reactive programming Key Features Strengthen your knowledge of important programming concepts and the latest features in Java Explore core programming topics including GUI programming, concurrency, and error handling Learn the idioms and best practices for writing high-quality Java code Book Description Java is one of the preferred languages among developers, used in

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everything right from smartphones, and game consoles to even supercomputers, and its new features simply add to the richness of the language. This book on Java programming begins by helping you learn how to install the Java Development Kit. You will then focus on understanding object-oriented programming (OOP), with exclusive insights into concepts like abstraction, encapsulation, inheritance, and polymorphism, which will help you when programming for real-world apps. Next, you'll cover fundamental programming structures of Java such as data structures and algorithms that will serve as the building blocks for your apps. You will also delve into core programming topics that will assist you with error handling, debugging, and

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testing your apps. As you progress, you'll move on to advanced topics such as Java libraries, database management, and network programming, which will hone your skills in building professional-grade apps. Further on, you'll understand how to create a graphic user interface using JavaFX and learn to build scalable apps by taking advantage of reactive and functional programming. By the end of this book, you'll not only be well versed with Java 10, 11, and 12, but also gain a perspective into the future of this language and software development in general. What you will learn

Learn and apply object-oriented principles
Gain insights into data structures and understand how they are used in Java
Explore multithreaded,

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asynchronous, functional, and reactive programming Add a user-friendly graphic interface to your application Find out what streams are and how they can help in data processing Discover the importance of microservices and use them to make your apps robust and scalable Explore Java design patterns and best practices to solve everyday problems Learn techniques and idioms for writing high-quality Java code Who this book is for Students, software developers, or anyone looking to learn new skills or even a language will find this book useful. Although this book is for beginners, professional programmers can benefit from it too. Previous knowledge of Java or any programming language is not required.

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Reactive Programming with Kotlin
(Second Edition)

Spring 5.0 Cookbook

Hands-On Reactive Programming with
Python

Learning Concurrent Programming in
Scala - Second Edition

Build scalable applications using
traditional, reactive, and concurrent
design patterns in Kotlin

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

Event-driven development unraveled
with RxPY

Summary Camel in Action, Second
Edition is the most complete Camel
book on the market. Written by core
developers of Camel and the authors of
the highly acclaimed first edition, this

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book distills their experience and practical insights so that you can tackle integration tasks like a pro. Forewords by James Strachan and Dr. Mark Little

Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Technology Apache Camel is a Java framework that implements enterprise integration patterns (EIPs) and comes with over 200 adapters to third-party systems. A concise DSL lets you build integration logic into your app with just a few lines of Java or XML. By using Camel, you benefit from the testing and experience of a large and vibrant open source community. About the Book Camel in Action, Second Edition is the definitive guide to the Camel framework. It starts

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with core concepts like sending, receiving, routing, and transforming data. It then goes in depth on many topics such as how to develop, debug, test, deal with errors, secure, scale, cluster, deploy, and monitor your Camel applications. The book also discusses how to run Camel with microservices, reactive systems, containers, and in the cloud. What's Inside Coverage of all relevant EIPs Camel microservices with Spring Boot Camel on Docker and Kubernetes Error handling, testing, security, clustering, monitoring, and deployment Hundreds of examples in Java and XML About the Reader Readers should be familiar with Java. This book is accessible to beginners and invaluable to experts. About the

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Author Claus Ibsen is a senior principal engineer working for Red Hat specializing in cloud and integration.

He has worked on Apache Camel for the last nine years where he heads the project. Claus lives in Denmark.

Jonathan Anstey is an engineering manager at Red Hat and a core Camel contributor. He lives in Newfoundland, Canada.

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Microservices Developing Camel
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Part 4 - Going further with Camel
Error handling Transactions and

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and Kubernetes Camel tooling Bonus
online chapters Available at <https://www.manning.com/books/camel-in-action-second-edition> and in
electronic versions of this book:
Reactive Camel Camel and the IoT by
Henryk Konsek
A definitive guide to mastering and
implementing concurrency patterns in
your applications Key FeaturesBuild
scalable apps with patterns in
multithreading, synchronization, and
functional programmingExplore the
parallel programming and

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multithreading techniques to make the code run faster. Efficiently use the techniques outlined to build reliable applications. Book Description Selecting the correct concurrency architecture has a significant impact on the design and performance of your applications. This book explains how to leverage the different characteristics of parallel architecture to make your code faster and more efficient. To start with, you'll understand the basic concurrency concepts and explore patterns around explicit locking, lock free programming, futures & actors. Then, you'll get insights into different concurrency models and parallel algorithms and put them to practice in different scenarios to realize your application's true potential. We'll take

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you through multithreading design patterns, such as master, slave, leader, follower, map-reduce, and monitor, also helping you to learn hands-on coding using these patterns. Once you've grasped all of this, you'll move on to solving problems using synchronizer patterns. You'll discover the rationale for these patterns in distributed & parallel applications, followed by studying how future composition, immutability and the monadic flow help create more robust code. Toward the end of the book, you'll learn about the actor paradigm and actor patterns - the message passing concurrency paradigm. What you will learn

Explore parallel architecture
Get acquainted with concurrency models
Internalize design

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themes by implementing
multithreading patterns Get insights
into concurrent design patterns
Discover design principles behind
many java threading abstractions Work
with functional concurrency
patterns Who this book is for This is a
must-have guide for developers who
want to learn patterns to build scalable
and high-performing apps. It ' s
assumed that you already have a
decent level of programming
knowledge.

Reactive programming is
revolutionary. It makes asynchronous
programming clean, intuitive, and
robust. Use RxJS 5 to write complex
programs in a simple way, and master
the Observable: a powerful data type
that substitutes callbacks and promises.

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Think about your programs as streams of data that change and adapt to produce what you want. Manage real-world concurrency and write complex flows of events in your applications with ease. Take advantage of Schedulers to make asynchronous testing easier. The code in this new edition is completely updated for RxJS 5 and ES6. Create concurrent applications with ease using RxJS 5, a powerful event composition library. Real-world JavaScript applications require you to master asynchronous programming, and chances are that you'll spend more time coordinating asynchronous events than writing actual functionality. This book introduces concepts and tools that will greatly simplify the process of writing

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asynchronous programs. Find out about Observables, a unifying data type that simplifies concurrent code and eases the pain of callbacks. Learn how Schedulers change the concept of time itself, making asynchronous testing sane again. Find real-world examples for the browser and Node.js along the way: how about a real-time earthquake visualization in 20 lines of code, or a frantic shoot-'em-up space videogame? You'll also use Cycle.js - a modern, reactive, web framework - to make a new breed of web applications. By the end of the book, you'll know how to think in a reactive way, and to use RxJS 5 to build complex programs and create amazing reactive user interfaces. You'll also understand how to integrate it with your existing

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projects and use it with the frameworks you already know. All the code in this new edition has been thoroughly revised and updated for RxJS 5, ES6, and Cycle.js Unified. What You Need: NodeJS 6.x and a modern web browser

A comprehensive guide to help you understand the principles of Reactive and asynchronous programming and its benefits

Key Features Explore the advantages of Reactive programming Use concurrency and parallelism in RxPY to build powerful reactive applications Deploy and scale your reactive applications using Docker

Book Description Reactive programming is central to many concurrent systems, but it ' s famous for its steep learning curve, which makes most developers feel like they're

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hitting a wall. With this book, you will get to grips with reactive programming by steadily exploring various concepts. This hands-on guide gets you started with Reactive Programming (RP) in Python. You will learn about the principles and benefits of using RP, which can be leveraged to build powerful concurrent applications. As you progress through the chapters, you will be introduced to the paradigm of Functional and Reactive Programming (FaRP), observables and observers, and concurrency and parallelism. The book will then take you through the implementation of an audio transcoding server and introduce you to a library that helps in the writing of FaRP code. You will understand how to use third-party services and

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dynamically reconfigure an application. By the end of the book, you will also have learned how to deploy and scale your applications with Docker and Traefik and explore the significant potential behind the reactive streams concept, and you'll have got to grips with a comprehensive set of best practices. What you will learnStructure Python code for better readability, testing, and performanceExplore the world of event-based programmingGrasp the use of the most common operators in RxUnderstand reactive extensions beyond simple examplesMaster the art of writing reusable componentsDeploy an application on a cloud platform with Docker and TraefikWho this book is for If you are a Python developer who

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wants to learn Reactive programming to build powerful concurrent and asynchronous applications, this book is for you. Basic understanding of the Python language is all you need to understand the concepts covered in this book.

Reactive Programming with RxJava
Asynchronous, Parallel, and
Multithreaded Programming
Learn RX with Rxjava, Rxkotlin and
Rxandroid

Creating Asynchronous, Event-Based
Applications

Hands-On Reactive Programming with
Clojure

Learning RxJava - Second Edition
Asynchronous Android Programming
Businesses are gathering data today
at exponential rates and yet few

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people know how to access it meaningfully. If you're a business or IT professional, this short hands-on guide teaches you how to pull and transform data with SQL in significant ways. You will quickly master the fundamentals of SQL and learn how to create your own databases. Author Thomas Nield provides exercises throughout the book to help you practice your newfound SQL skills at home, without having to use a database server environment. Not only will you learn how to use key SQL statements to find and manipulate your data, but you'll also discover how to efficiently design and manage databases to meet your needs. You'll also learn how to:

- Explore relational databases, including lightweight and centralized models
- Use SQLite and SQLiteStudio to create lightweight databases in

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minutes Query and transform data in meaningful ways by using SELECT, WHERE, GROUP BY, and ORDER BY Join tables to get a more complete view of your business data Build your own tables and centralized databases by using normalized design principles Manage data by learning how to INSERT, DELETE, and UPDATE records

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

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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 Netflix that uses RxJava* Implement Reactive web applications using Spring Framework 5 and RxJavaIn DetailReactive programming is an

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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 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

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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 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.

Over 100 hands-on recipes to build

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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

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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

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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

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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. **Build fault-tolerant, robust, and 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

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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 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

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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 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

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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.

Learn effective ways to secure your applications with Spring and Spring WebFlux

Design concurrent and asynchronous applications using the RxCpp library and Modern C++17

Learning Concurrent Programming in Scala

With Examples in C# and F#

Clojure Reactive Programming

Vert.x in Action

RxSwift (Fourth Edition)

If you're one of the many developers uncertain about concurrent and multithreaded development, this practical

cookbook will change your mind. With more than 75 code-rich recipes, author Stephen Cleary demonstrates parallel processing and asynchronous programming techniques, using libraries and language features in .NET 4.5 and C# 5.0. Concurrency is becoming more common in responsive and scalable application development, but it's been extremely difficult to code. The detailed solutions in this cookbook show you how modern tools raise the level of abstraction, making concurrency much easier than before. Complete with ready-to-use code and discussions about how and why the solution works, you get

**recipes for using: async and
await for asynchronous
operations Parallel
programming with the Task
Parallel Library The TPL
Dataflow library for creating
dataflow pipelines
Capabilities that Reactive
Extensions build on top of
LINQ Unit testing with
concurrent code Interop
scenarios for combining
concurrent approaches
Immutable, threadsafe, and
producer/consumer
collections Cancellation
support in your concurrent
code Asynchronous-friendly
Object-Oriented Programming
Thread synchronization for
accessing data
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.

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. 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 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 11Apply reactive streams using RxJava Program using Akka StreamsCarry out reactive streams programming in

**Android Who This Book Is For
Experienced Java
programmers.**

**Rapid Java Persistence and
Microservices**

**Learning Concurrency in
Python**

**Learn Java 12 Programming
Reactive Programming for
.NET Developers**

**Build reactive and scalable
microservices using the
Reactor framework**

**Learning Reactive
Programming with Java 8**

**A step-by-step guide to
learning essential concepts in
Java SE 10, 11, and 12**

**Reactive Programming with Java
and ReactiveX About This Book**
Explore the essential tools and

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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.

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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,

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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

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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

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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. This concise book empowers all Java developers to master the complexity of the Java thread APIs and concurrency utilities. This knowledge aids the Java developer in writing correct and complex performing multithreaded applications. Java's thread APIs and concurrency utilities are among its most powerful and challenging APIs and language features. Java beginners typically find it very difficult to use these features to

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write correct multithreaded applications. Threads and the Concurrency Utilities helps all Java developers master and use these capabilities effectively. This book is divided into two parts of four chapters each. Part 1 focuses on the Thread APIs and Part 2 focuses on the concurrency utilities. In Part 1, you learn about Thread API basics and runnables, synchronization and volatility, waiting and notification, and the additional capabilities of thread groups, thread local variables, and the Timer Framework. In Part 2, you learn about concurrency utilities basics and executors, synchronizers, the Locking Framework, and the additional

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capabilities of concurrent collections, atomic variables, and the Fork/Join Framework. Each chapter ends with select exercises designed to challenge your grasp of the chapter's content. An appendix provides the answers to these exercises. A second appendix explores how threads are used by various standard class library APIs. Specifically, you learn about threads in the contexts of Swing, JavaFX, and Java 8's Streams API.

What You Will Learn

- How to do thread runnables, synchronization, volatility, waiting and notification, thread groups, thread local variables, and the Timer Framework
- How to create multithreaded applications that

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work correctly. What are concurrency utilities basics and executors What are synchronizers, the Locking Framework, concurrent collections, atomic variables, and the Fork/Join Framework and how to use them How to leverage the concurrency utilities to write more complex multithreaded applications and achieve greater performance How to apply thread usage in Swing, JavaFX, and Java 8 Streams API contexts Audience The primary audience is Java beginners and the secondary audience is more advanced Java developers who have worked with the Thread APIs and the Concurrency Utilities. Updated with the latest Maven

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coordinates, Java programming features, and API changes, this book is your guide to solving problems in writing asynchronous and event-based programs

Key Features

Explore a variety of tools and techniques used to solve problems in implementing concurrency and parallelization

Learn about core operators in RxJava that enable you to express your code logic productively

Apply RxJava with Kotlin to create responsive Android apps with better user experience

Book Description

RxJava is not just a popular library for building asynchronous and event-based applications; it also enables you to create a cleaner and

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more readable code base. In this book, you'll cover the core fundamentals of reactive programming and learn how to design and implement reactive libraries and applications. Learning RxJava will help you understand how reactive programming works and guide you in writing your first example in reactive code. You'll get to grips with the workings of Observable and Subscriber, and see how they are used in different contexts using real-world use cases. The book will also take you through multicasting and caching to help prevent redundant work with multiple Observers. You'll then learn how to create your own RxJava operators by reusing

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reactive logic. As you advance, you'll explore effective tools and libraries to test and debug RxJava code. Finally, you'll delve into RxAndroid extensions and use Kotlin features to streamline your Android apps. By the end of this book, you'll become proficient in writing reactive code in Java and Kotlin to build concurrent applications, including Android applications. What you will learnDiscover different ways to create Observables, Observers, and SubscribersMulticast in order to push data to multiple destinations and cache and replay themExpress RxJava idiomatically with the help of Kotlin features such as extension functions and data

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classes Become familiar with various operators available in RxJava to perform common transformations and tasks Explore RxJava's reactive types, including Flowable, Single, Maybe, and Completable Demystify Observables and how they express data and events as sequences Who this book is for This book is for Java developers who want to leverage reactive programming to develop more resilient and concurrent applications. If you're an RxJava user looking to get to grips with the latest features and updates in RxJava 3, this book is for you. Fundamental knowledge of core Java features and object-oriented programming will assist you in

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understanding the key concepts covered in this book.

Gain all the essentials you need to create scalable microservices, which will help you solve real challenges when deploying services into production. This book will take you through creating a scalable data layer with polygot persistence. You'll cover data access and query patterns in Spring and JPA in high-performance environments. As part of this topic, you'll see the advantages of multiple persistence frameworks in Java and especially the easy persistence offered by NoSQL databases and reactive web solutions. The last few chapters present advanced

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concepts that are useful for very high-performance real-time applications: you'll implement applications using Spring's good support for Web sockets in their raw form as well as for connecting to message brokers such as RabbitMQ. This can be useful for applications such as navigation systems and gaming platforms.

What You Will Learn

- Build end-to-end modern applications using microservices, persistence essentials, reactive web, and other high-performance concepts
- Master Spring's configuration options
- Secure microservices efficiently
- Monitor your services post deployment

Who This Book Is For

Java developers and architects

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interested in microservices.

Concurrency with RxJava, Reactor,
and Akka Streams

Hands-On Reactive Programming
in Spring 5

A Hands-On Approach for
Beginners

Build scalable apps with patterns in
multithreading, synchronization,
and functional programming

Hands-On Reactive Programming
with Reactor

Create asynchronous, event-based,
and concurrent applications, 2nd
Edition

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

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 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

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

Functional languages help developers support concurrency by encouraging immutable data structures that can be passed between threads without having to worry about a shared state, all while avoiding side effects. Concurrency in .NET teaches readers how to

**build concurrent and
scalable programs in
.NET using the
functional paradigm.
This intermediate-level
guide is aimed at
developers, architects,
and passionate computer
programmers. Purchase of
the print book includes
a free eBook in PDF,
Kindle, and ePub formats
from Manning
Publications.
Make the most of Kotlin
by leveraging design
patterns and best
practices to build
scalable and high**

performing apps Key
Features Understand
traditional GOF design
patterns to apply
generic solutions Shift
from OOP to FP; covering
reactive and concurrent
patterns in a step-by-
step manner Choose the
best microservices
architecture and MVC for
your development
environment Book
Description Design
patterns enable you as a
developer to speed up
the development process
by providing you with
proven development

paradigms. Reusing design patterns helps prevent complex issues that can cause major problems, improves your code base, promotes code reuse, and makes an architecture more robust. The mission of this book is to ease the adoption of design patterns in Kotlin and provide good practices for programmers. The book begins by showing you the practical aspects of smarter coding in Kotlin, explaining the basic

Kotlin syntax and the impact of design patterns. From there, the book provides an in-depth explanation of the classical design patterns of creational, structural, and behavioral families, before heading into functional programming. It then takes you through reactive and concurrent patterns, teaching you about using streams, threads, and coroutines to write better code along the way By the end of the

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book, you will be able to efficiently address common problems faced while developing applications and be comfortable working on scalable and maintainable projects of any size. What you will learn Get to grips with Kotlin principles, including its strengths and weaknesses Understand classical design patterns in Kotlin Explore functional programming using built-in features of Kotlin Solve real-

world problems using reactive and concurrent design patterns Use threads and coroutines to simplify concurrent code flow Understand antipatterns to write clean Kotlin code, avoiding common pitfalls Learn about the design considerations necessary while choosing between architectures Who this book is for This book is for developers who would like to master design patterns with Kotlin to build efficient and scalable applications.

**Basic Java or Kotlin
programming knowledge is
assumed**

**Learn how to implement
the reactive programming
paradigm with C++ and
build asynchronous and
concurrent applications**

**Key Features Efficiently
exploit concurrency and
parallelism in your
programs Use the
Functional Reactive
programming model to
structure programs**

**Understand reactive GUI
programming to make your
own applications using
Qt Book Description**

Reactive programming is an effective way to build highly responsive applications with an easy-to-maintain code base. This book covers the essential functional reactive concepts that will help you build highly concurrent, event-driven, and asynchronous applications in a simpler and less error-prone way. C++ Reactive Programming begins with a discussion on how event processing was undertaken by different programming systems

earlier. After a brisk introduction to modern C++ (C++17), you'll be taken through language-level concurrency and the lock-free programming model to set the stage for our foray into the Functional Programming model. Following this, you'll be introduced to RxCpp and its programming model. You'll be able to gain deep insights into the RxCpp library, which facilitates reactive programming. You'll learn how to deal with

**reactive programming
using Qt/C++ (for the
desktop) and C++
microservices for the
Web. By the end of the
book, you will be well
versed with advanced
reactive programming
concepts in modern C++
(C++17). What you will
learn Understand
language-level
concurrency in C++
Explore advanced C++
programming for the FRP
Uncover the RxCpp
library and its
programming model Mix
the FP and OOP**

constructs in C++ 17 to write well-structured programs Master reactive microservices in C++ Create custom operators for RxCpp Learn advanced stream processing and error handling Who this book is for If you're a C++ developer interested in using reactive programming to build asynchronous and concurrent applications, you'll find this book extremely useful. This book doesn't assume any previous knowledge of reactive programming.

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**Hands-On Design Patterns
with Kotlin**

**Java Threads and the
Concurrency Utilities
Reactive Programming
with Swift**

**Reactive Programming
with Java 9**

**Persistence Made Easy
Using Java EE8, JPA and
Spring**

Rx.NET in Action

C++ Reactive Programming

**Secure your Java applications by
integrating the Spring Security
framework in your code Key**

**Features Provide authentication,
authorization and other security
features for Java applications.**

Learn how to secure microservices,

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cloud, and serverless applications easily Understand the code behind the implementation of various security features Book Description Security is one of the most vital concerns for any organization. The complexity of an application is compounded when you need to integrate security with existing code, new technology, and other frameworks. This book will show you how to effectively write Java code that is robust and easy to maintain. Hands-On Spring Security 5 for Reactive Applications starts with the essential concepts of reactive programming, Spring Framework, and Spring Security. You will then learn about a variety of authentication mechanisms and how to integrate them easily with the Spring MVC application. You

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will also understand how to achieve authorization in a Spring WebFlux application using Spring Security. You will be able to explore the security configurations required to achieve OAuth2 for securing REST APIs and integrate security in microservices and serverless applications. This book will guide you in integrating add-ons that will add value to any Spring Security module. By the end of the book, you will be proficient at integrating Spring Security in your Java applications

What you will learn

- Understand how Spring Framework and Reactive application programming are connected**
- Implement easy security configurations with Spring Security expressions**
- Discover the relationship between OAuth2 and**

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**OpenID Connect Secure
microservices and serverless
applications with Spring Integrate
add-ons, such as HDIV, Crypto
Module, and CORS support Apply
Spring Security 5 features to
enhance your Java reactive
applications Who this book is for If
you are a Java developer who
wants to improve application
security, then this book is for you.
A basic understanding of Spring,
Spring Security framework, and
reactive applications is required to
make the most of the book.
Learning RxJavaBuild concurrent
applications using reactive
programming with the latest
features of RxJava 3, 2nd
EditionPackt Publishing Ltd
If you are a Clojure developer who
is interested in using Reactive**

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Programming to build asynchronous and concurrent applications, this book is for you. Knowledge of Clojure and Leiningen is required. Basic understanding of ClojureScript will be helpful for the web chapters, although it is not strictly necessary. A growing flood of data is aimed at JavaScript applications, and they need be ready for it. As more and more data is received, applications must scale to stay operational. There's also the problem of latency when data has to be fetched from remote locations. RxJS, or Reactive Extensions for JavaScript, is a library for transforming, composing, and consuming streams of data. RxJS combines reactive and functional programming to give an extensible,

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asynchronous event handling system for JavaScript. RxJS in Action gives readers the development skills they need to create reactive applications with RxJS. This book is full of theory and practical examples that build on each other and help readers begin thinking in a reactive manner. The book begins by teaching the fundamentals of functional programming, and dives in to the basics of RxJS and what it means to be reactive. Next, it teaches how to build real-world applications with RxJS. The last part of the book tackles the advanced topics to take the reader's reactive programming skills to the next level, as they will learn how to deal with error handling, unit testing, and the role of RxJS when combined with

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frameworks such as Angular.js or Cycle.js. Examples in the book use RxJS 5, the latest version of RxJS built with an eye on performance and simplicity. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Rxjs in Action

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

Camel in Action

Scala Reactive Programming

Recipes to build, test, and run

Spring applications efficiently

Functional Concurrency in . Net

Java 9 Concurrency Cookbook

Get up and running with reactive programming paradigms to build fast, concurrent, and powerful

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applications About This Book Get to grips with the core design principles of reactive programming Learn about Reactive Extensions for .NET through real-world examples Improve your problem-solving ability by applying functional programming Who This Book Is For If you are a .NET developer who wants to implement all the reactive programming paradigm techniques to create better and more efficient code, then this is the book for you. No prior knowledge of reactive programming is

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expected. What You Will
Learn Create, manipulate,
and aggregate sequences in
a functional-way Query
observable data streams
using standard LINQ query
operators Program reactive
observers and observable
collections with C# Write
concurrent programs with
ease, scheduling actions
on various workers Debug,
analyze, and instrument Rx
functions Integrate Rx
with CLR events and custom
scheduling Learn
Functional Reactive
Programming with F# In
Detail Reactive
programming is an

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innovative programming paradigm focused on time-based problem solving. It makes your programs better-performing, easier to scale, and more reliable. Want to create fast-running applications to handle complex logics and huge datasets for financial and big-data challenges? Then you have picked up the right book! Starting with the principles of reactive programming and unveiling the power of the pull-programming world, this book is your one-stop solution to get a deep

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practical understanding of reactive programming techniques. You will gradually learn all about reactive extensions, programming, testing, and debugging observable sequence, and integrating events from CLR data-at-rest or events. Finally, you will dive into advanced techniques such as manipulating time in data-flow, customizing operators and providers, and exploring functional reactive programming. By the end of the book, you'll know how to apply reactive programming to

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solve complex problems and build efficient programs with reactive user interfaces. Style and approach This is a concise reference manual for reactive programming with Rx for C# and F# using real-world, practical examples.

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,

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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

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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

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transition to RxJava

version 2

*Unlock the power of multi-
core mobile devices to
build responsive and
reactive Android*

*applications About This
Book Construct scalable
and performant*

*applications to take
advantage of multi-thread
asynchronous techniques*

*Explore the high-level
Android asynchronous
constructs available on
the Android SDK Choose the
most appropriate*

*asynchronous technique to
implement your next
outstanding feature Who*

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This Book Is For This book is for Android developers who want to learn how to build multithreaded and reliable Android applications using high-level and advanced asynchronous techniques and concepts. No prior knowledge of concurrent and asynchronous programming is required. This book will also be great for Java experts who are new to Android. Whether you are a beginner at Android development or a seasoned Android programmer, this book will guide you through the most

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basic and advanced asynchronous constructs used in Android programming. What You Will Learn Get familiar with the android process model and low-level concurrent constructs delivered by the Android SDK Use AsyncTask and loader framework to load data in the background, delivering progress results in the meantime Create services that interact with your activity without compromising the UI rendering Learn the working of Android concurrency on the Native

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Layer Interact with nearby devices over Bluetooth and WiFi communications channels Create and compose tasks with RxJava to execute complex asynchronous work in a predictable way Get accustomed to the use of the Android Loader construct to deliver up-to-date results In Detail Asynchronous programming has acquired immense importance in Android programming, especially when we want to make use of the number of independent processing units (cores) available on

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the most recent Android devices. With this guide in your hands you'll be able to bring the power of Asynchronous programming to your own projects, and make your Android apps more powerful than ever before! To start with, we will discuss the details of the Android Process model and the Java Low Level Concurrent Framework, delivered by Android SDK. We will also guide you through the high-level Android-specific constructs available on the SDK: Handler, AsyncTask, and Loader.

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Next, we will discuss the creation of IntentServices, Bound Services and External Services, which can run in the background even when the user is not interacting with it. You will also discover AlarmManager and JobScheduler APIs, which are used to schedule and defer work without sacrificing the battery life. In a more advanced phase, you will create background tasks that are able to execute CPU-intensive tasks in a native code-making use of

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the Android NDK. You will be then guided through the process of interacting with remote services asynchronously using the HTTP protocol or Google GCM Platform. Using the EventBus library, we will also show how to use the Publish-Subscribe software pattern to simplify communication between the different Android application components by decoupling the event producer from event consumer. Finally, we will introduce RxJava, a popular asynchronous Java framework used to compose

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work in a concise and reactive way. Asynchronous Android will help you to build well-behaved applications with smooth responsive user interfaces that delight the users with speedy results and data that's always fresh. Style and approach This easy-to-follow guide is full of code examples of real-world use cases. Each asynchronous topic is explained sequentially, from the most basic and low-level to the more advanced, using concise and effective language. Some lifecycle flows and

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concepts feature illustrations to help you understand the complex interactions between Android entities.

As enterprise applications become larger and more distributed, new architectural approaches like reactive designs, microservices, and event streams are required knowledge. Vert.x in Action teaches you to build highly-scalable reactive enterprise applications using the mature, rock-solid Vert.x framework. Vert.x in Action gets you up to

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speed in the basics of asynchronous programming as you learn to design and code reactive applications. Using the Vert.x asynchronous APIs, you'll build services including web stack, messaging, authentication, and access control. You'll also dive into deployment of container-native components with Docker, Kubernetes, and OpenShift. Along the way, you'll check your app's health and learn to test its resilience to external service failures. Purchase of the print book includes

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a free eBook in PDF,
Kindle, and ePub formats
from Manning Publications.
Concurrency in C# Cookbook
Hands-On Spring Security 5
for Reactive Applications
Build concurrent
applications using
reactive programming with
the latest features of
RxJava 3, 2nd Edition
Reactive Streams in Java
Getting Started with SQL
Learn how to use RxClojure
to deal with stateful
computations Key
FeaturesLeverage the
features of Functional
Reactive Programming using
ClojureCreate dataflow-

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based systems that are the building blocks of Reactive Programming Use different Functional Reactive Programming frameworks, techniques, and patterns to solve real-world problems Book Description Reactive Programming is central to many concurrent systems, and can help make the process of developing highly concurrent, event-driven, and asynchronous applications simpler and less error-prone. This book will allow you to explore Reactive Programming in Clojure 1.9

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and help you get to grips with some of its new features such as transducers, reader conditionals, additional string functions, direct linking, and socket servers. Hands-On Reactive Programming with Clojure starts by introducing you to Functional Reactive Programming (FRP) and its formulations, as well as showing you how it inspired Compositional Event Systems (CES). It then guides you in understanding Reactive Programming as well as learning how to develop

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your ability to work with time-varying values thanks to examples of reactive applications implemented in different frameworks. You'll also gain insight into some interesting Reactive design patterns such as the simple component, circuit breaker, request-response, and multiple-master replication. Finally, the book introduces microservices-based architecture in Clojure and closes with examples of unit testing frameworks. By the end of the book, you will have

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gained all the knowledge you need to create applications using different Reactive Programming approaches. What you will learnUnderstand how to think in terms of time-varying values and event streamsCreate, compose, and transform observable sequences using Reactive extensionsBuild a CES framework from scratch using core.async as its foundationDevelop a simple ClojureScript game using ReagiIntegrate Om and RxJS in a web applicationImplement a

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reactive API in Amazon Web Services (AWS) Discover helpful approaches to backpressure and error handlingGet to grips with futures and their applicationsWho this book is for If you're interested in using Reactive Programming to build asynchronous and concurrent applications, this is the book for you. Basic knowledge of Clojure programming is necessary to understand the concepts covered in this book. Practically and deeply understand concurrency in Python to write efficient

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programs About This Book
Build highly efficient,
robust, and concurrent
applications Work through
practical examples that
will help you address the
challenges of writing
concurrent code Improve
the overall speed of
execution in
multiprocessor and
multicore systems and keep
them highly available Who
This Book Is For This book
is for Python developers
who would like to get
started with concurrent
programming. Readers are
expected to have a working
knowledge of the Python

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language, as this book
will build on these
fundamentals concepts.

What You Will Learn

Explore the concept of
threading and

multiprocessing in Python

Understand concurrency

with threads Manage

exceptions in child

threads Handle the hardest
part in a concurrent

system – shared resources

Build concurrent systems

with Communicating

Sequential Processes (CSP)

Maintain all concurrent

systems and master them

Apply reactive programming

to build concurrent

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systems Use GPU to solve specific problems In Detail Python is a very high level, general purpose language that is utilized heavily in fields such as data science and research, as well as being one of the top choices for general purpose programming for programmers around the world. It features a wide number of powerful, high and low-level libraries and frameworks that complement its delightful syntax and enable Python programmers to create. This book introduces some

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of the most popular libraries and frameworks and goes in-depth into how you can leverage these libraries for your own high-concurrent, highly-performant Python programs. We'll cover the fundamental concepts of concurrency needed to be able to write your own concurrent and parallel software systems in Python. The book will guide you down the path to mastering Python concurrency, giving you all the necessary hardware and theoretical knowledge. We'll cover concepts such

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as debugging and exception handling as well as some of the most popular libraries and frameworks that allow you to create event-driven and reactive systems. By the end of the book, you'll have learned the techniques to write incredibly efficient concurrent systems that follow best practices. Style and approach This easy-to-follow guide teaches you new practices and techniques to optimize your code, and then moves toward more advanced ways to effectively write efficient Python code.

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Small and simple practical examples will help you test the concepts yourself, and you will be able to easily adapt them for any application. Learn the art of building intricate, modern, scalable, and concurrent applications using Scala

About This Book* Make the most of Scala by understanding its philosophy and harnessing the power of multicores* Get acquainted with cutting-edge technologies in the field of concurrency, through practical, real-world

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applications* Get this step-by-step guide packed with pragmatic examplesWho This Book Is ForIf you are a Scala programmer with no prior knowledge about concurrent programming, or seeking to broaden your existing knowledge about concurrency, this book is for you. Basic knowledge of the Scala programming language will be helpful. Also if you have a solid knowledge in another programming language, such as Java, you should find this book easily accessible.What You Will Learn* Get to grips with

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the fundamentals of
concurrent programming on
modern multiprocessor
systems, with a particular
focus on the JVM
concurrency model* Build
high-performance
concurrent systems from
simple, low-level
concurrency primitives*
Express asynchrony in
concurrent computations
with futures and promises*
Seamlessly accelerate
sequential programs by
using data-parallel
collections* Design safe,
scalable, and easy-to-
comprehend in-memory
transactional data models*

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Transparently create distributed applications that scale across multiple machines* Integrate different concurrency frameworks together in large applications* Develop and implement scalable and easy-to-understand concurrent applications in Scala 2.12

In Detail Scala is a modern, multiparadigm programming language designed to express common programming patterns in a concise, elegant, and type-safe way. Scala smoothly integrates the features of object-oriented and

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functional languages. In this second edition, you will find an updated coverage of the Scala 2.12 platform. The Scala 2.12 series targets Java 8 and requires it for execution. It starts by introducing you to the foundations of concurrent programming on the JVM, outlining the basics of the Java Memory Model, and then shows some of the classic building blocks of concurrency, such as the atomic variables, thread pools, and concurrent data structures, along with the caveats of traditional

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concurrency. It then walks you through different high-level concurrency abstractions, each tailored toward a specific class of programming tasks, while touching on the latest advancements of Async programming capabilities of Scala. It also covers some useful patterns and idioms to use the techniques described. Finally, the book presents an overview of when to use which concurrency library and demonstrates how they all work together. Microservices and big-data increasingly confront us

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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

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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, 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,

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RPC with protocols like
RSocket, testing, and
integration and
composition, and more.