

Learning Rxjava Reactive Concurrent And Responsive Applications Pdf Pdf

[Learning Rxjava Reactive Concurrent And Responsive Applications Pdf Pdf](#) - learning rxjava reactive concurrent and responsive applications pdf pdf Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become apparent than ever. Its capability to stir emotions, provoke thought, and instigate transformation is actually remarkable. This extraordinary book, aptly titled **"learning rxjava reactive concurrent and responsive applications pdf pdf,"** written by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we shall delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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Reactive Spring Josh Long 2020-09-15 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, 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.

Hands-On Reactive Programming with Reactor Rahul Sharma 2018-09-29 Discover how project Reactor enhances the reactive programming paradigm and allows you to build scalable asynchronous applications Key FeaturesUse reactive APIs, Flux, and Mono to implement reactive extensionsCreate concurrent applications without the complexity of Java's concurrent APIUnderstand techniques to implement event-driven and reactive applicationsBook 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 learnExplore benefits of the Reactive paradigm and the Reactive Streams APIDiscover the impact of Flux and Mono implications in ReactorExpand and repeat data in stream processingGet to grips with various types of processors and choose the best oneUnderstand how to map errors to make corrections easierCreate robust tests using testing utilities offered 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.

Python High Performance Gabriele Lanaro 2017-05-24 Learn how to use Python to create efficient applications About This Book Identify the bottlenecks in your applications and solve them using the best profiling techniques Write efficient numerical code in NumPy, Cython, and Pandas Adapt your programs to run on multiple processors and machines with parallel programming Who This Book Is For The book is aimed at Python developers who want to improve the performance of their application. Basic knowledge of Python is expected What You Will Learn Write efficient numerical code with the NumPy and Pandas libraries Use Cython and Numba to achieve native performance Find bottlenecks in your Python code using profilers Write asynchronous code using Asyncio and RxPy Use Tensorflow and Theano for automatic parallelism in Python Set up and run distributed algorithms on a cluster using Dask and PySpark In Detail Python is a versatile language that has found applications in many industries. The clean syntax, rich standard library, and vast selection of third-party libraries make Python a wildly popular language.

Python High Performance is a practical guide that shows how to leverage the power of both native and third-party Python libraries to build robust applications. The book explains how to use various profilers to find performance bottlenecks and apply the correct algorithm to fix them. The reader will learn how to effectively use NumPy and Cython to speed up numerical code. The book explains concepts of concurrent programming and how to implement robust and responsive applications using Reactive programming. Readers will learn how to write code for parallel architectures using Tensorflow and Theano, and use a cluster of computers for large-scale computations using technologies such as Dask and PySpark. By the end of the book, readers will have learned to achieve performance and scale from their Python applications. Style and approach A step-by-step practical guide filled with real-world use cases and examples

Reactive Programming with RxJS 5 Sergi Mansilla 2018-02-05 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. 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 asynchronous programs. Find out about Observables, a unifying data type that simplifies concurrent code and eases the pain of callbacks. Learn how Schedulers reduce 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 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

C++ Reactive Programming Praseed Pai 2018-06-29 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.

Reactive Android Programming Tadas Subonis 2017-05-26 Make the most of asynchronous android programmingAbout This Book* Install and set up RxJava for Android development* Implement the Reactive paradigm for Android programming using RxJava* Create cutting edge real world Android apps with Reactive programming.Who This Book Is ForAre you an android developer trying to figure out how to use reactive paradigm for your programming needs? If yes then this is the book for you. No previous knowledge of RxJava is required.What You Will Learn* Set up an environment for asynchronous that is reactive Android programming* Write custom observables and higher level abstractions* Orchestrating multiple calls using Reactive programming principles* Fetch remote financial data using RxJava* Integrate and process Twitter streams gracefully* Utilize Reactive programming to develop interactive and responsive Android apps* Create your own application to follow financial stock updates in real-time based on selected companies' symbols* Integrate updates from the Twitter for those companies.In DetailWriting code on Android is hard. Writing a high quality code that involves concurrent and parallel tasks is even harder. Ensuring that this code will run without unforeseen race conditions is an order of magnitude harder. RxJava is the tool that can help write code for such tasks.In this book a novice developer will be introduced to a wide variety of tools that RxJava provides to enable them to produce robust and high-quality code for their asynchronous tasks by building a relatively simple(and high quality) application using advanced RxJava techniques to produce a high quality product.Part 1 of the book will lead the developer through RxJava's initial setup in Android environment. In Part 2, the reader will learn RxJava 2.0 step-by-step by starting off with stock data processing and display.The developer will learn to choose appropriate Schedulers and to use Retrofit library for remote requests.In Part 3, the reader will also learn advanced topics such as adding integration to Twitter to process its streaming data by combining it with stock data.Style and approachThis book is a step by step practical guide which will essentially teach you to set up, implement, and debug Reactive Android Code with ease.

Concurrent Patterns and Best Practices Atul S. Khot 2018-09-27 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 multithreading techniques to make the code run fasterEfficiently use the techniques outlined to build reliable applicationsBook 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 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 learnExplore parallel architecture Get acquainted with concurrency models Internalize design themes by implementing multithreading patterns Get insights into concurrent design patterns Discover design principles behind many java threading abstractions Work with functional concurrency patternsWho 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.

Building Microservices Sam Newman 2015-02-02 Annotation Over the past 10 years, distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of technology, architecture, operations and organization to show you how to move towards finer-grained systems.

Reactive Programming with Java 9 Tejaswini Mandar Jog 2017-09-20 This book will teach you how to build robust asynchronous and event-driven applications with ease.About This Book* Learn about Java 9's Flow API, Reactive programming along with Kafka and Mockito, and how these aspects are utilized by RxJava* Build fast and concurrent applications with ease, without the complexity of Java's concurrent API and shared states, with the help of Spring* Explore a wide variety of code examples to easily get used to all the features and tools provided by RxJavaWho This Book Is ForThis book targets existing Java developers who want to understand Reactive programming and build responsive and resilient asynchronous applications using Reactive stream implementations.What You Will Learn* Understand the Reactive Manifesto* Grasp the Reactive Streams types introduced in Java 9 in the form of the Flow API* Use RxJava, a Reactive Streams implementation, to build asynchronous applications* Build responsiveness and resilience into applications using RxJava operators* Demonstrate the usage of Hystrix, a latency and fault tolerance library from Netflix that uses RxJava* Implement Reactive web applications using Spring Framework 5 and RxJavaIn DetailReactive programming is an asynchronous programming model that helps you tackle the essential complexity that comes with writing such applications.Using Reactive programming to start building applications is not immediately intuitive to a developer who has been writing programs in the imperative paradigm. To tackle the essential complexity, Reactive programming uses declarative and functional paradigms to build programs. This book sets out to make the paradigm shift easy.This book begins by explaining what Reactive programming is, the Reactive manifesto, and the Reactive Streams 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 will be fully equipped with the tools and techniques needed to implement robust, event-driven, Reactive applications.Style and approachThis book is a tutorial about Reactive programming in Java using APIs as well as the RxJava library. Packed with a lot of well-described examples, it explains Reactive programming concepts in plain and readable language.

Hands-On Reactive Programming with Python Romain Picard 2018-10-25 A comprehensive guide to help you understand the principles of Reactive and asynchronous programming and its benefits Key FeaturesExplore the advantages of Reactive programmingUse concurrency and parallelism in RxPY to build powerful reactive applicationsDeploy and scale your reactive applications using DockerBook 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 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 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 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 Tomasz Nurkiewicz 2016-10-06 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

Learning Concurrency in Python Elliot Forbes 2017-08-16 Practically and deeply understand concurrency in Python to write efficient 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 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 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 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 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. Small and simple practical examples will help you test the concepts yourself, and you will be able to easily adapt them for any application.

Learning Reactive Programming with Java 8 Nickolay Tsvetinov 2015-06-24 Whether you are a Java expert or at a beginner level, you'll benefit from this book, because it will teach you a brand new way of coding and thinking. The book starts with an explanation of what reactive programming is, why it is so appealing, and how we can integrate it in to Java. It continues by introducing the new Java 8 syntax features, such as lambdas and function references, and some functional programming basics. From this point on, the book focuses on RxJava in depth. It goes through creating Observables, transforming, filtering, and combining them, and concurrency and testing to finish with extending the library itself. This book is a definite tutorial in RxJava filled with a lot of well-described examples. It explains reactive programming concepts in plain and readable language, without scientific formulas and terms.

Reactive Streams in Java Adam L. Davis 2018-11-29 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.

Kotlin Coroutines by Tutorials (Second Edition) raywenderlich Tutorial Team 2019-09-18

Clojure Reactive Programming Leonardo Borges 2015-03-23 If you are a Clojure developer who is interested in using Reactive 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.

Scala Reactive Programming Rambabu Posa 2018-02-28 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 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 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 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.

Learning RxJava - Second Edition Nick Samoylov 2020 Updated with the latest Maven 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 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 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 learn Discover different ways to create Observables, Observers, and Subscribers Multicast in order to push data to multiple destinations and cache and replay them Express RxJava idiomatically with the help of Kotlin features such as extension functions and data 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 ...

Learning RxJava Thomas Nield 2017-06-20 Reactive Programming with Java and ReactiveX About This Book Explore the essential tools and operators RxJava provides, and know which situations to use them in Delve into Observables and Subscribers, the core components of RxJava used for building scalable and performant reactive applications Delve into the practical implementation of tools to effectively take on complex tasks such as concurrency and backpressure Who This Book Is For The primary audience for this book is developers with at least a fundamental mastery of Java. Some readers will likely be interested in RxJava to make programs more resilient, concurrent, and scalable. Others may be checking out reactive programming just to see what it is all about, and to judge whether it can solve any problems they may have. What You Will Learn Learn the features of RxJava 2 that bring about many significant changes, including new reactive types such as Flowable, Single, Maybe, and Completable Understand how reactive programming works and the mindset to "think reactively" Demystify the Observable and how it quickly expresses data and events as sequences Learn the various Rx operators that transform, filter, and combine data and event sequences Leverage multicasting to push data to multiple destinations, and cache and replay them Discover how concurrency and parallelization work in RxJava, and how it makes these traditionally complex tasks trivial to implement Apply RxJava and Retrolambda to the Android domain to create responsive Android apps with better user experiences Use RxJava with the Kotlin language to express RxJava more idiomatically with extension functions, data classes, and other Kotlin features In Detail RxJava is a library for composing asynchronous and event-based programs using Observable sequences for the JVM, allowing developers to build robust applications in less time. Learning RxJava addresses all the fundamentals of reactive programming to help readers write reactive code, as well as teach them an effective approach to designing and implementing reactive libraries and applications. Starting with a brief introduction to reactive programming concepts, there is an overview of Observables and Observers, the core components of RxJava, and how to combine different streams of data and events together. You will also learn simpler ways to achieve concurrency and remain highly performant, with no need for synchronization. Later on, we will leverage backpressure and other strategies to cope with rapidly-producing sources to prevent bottlenecks in your application. After covering custom operators, testing, and debugging, the book dives into hands-on examples using RxJava on Android as well as Kotlin. Style and approach This book will be different from other Rx books, taking an approach that comprehensively covers Rx concepts and practical applications.

Practical Site Reliability Engineering Pethuru Raj Chelliah 2018-11-30 Create, deploy, and manage applications at scale using SRE principles Key Features Build and run highly available, scalable, and secure software Explore abstract SRE in a simplified and streamlined way Enhance the reliability of cloud environments through SRE enhancements Book Description Site reliability engineering (SRE) is being touted as the most competent paradigm in establishing and ensuring next-generation high-quality software solutions. This book starts by introducing you to the SRE paradigm and covers the need for highly reliable IT platforms and infrastructures. As you make your way through the next set of chapters, you will learn to develop microservices using Spring Boot and make use of RESTful frameworks. You will also learn about GitHub for deployment, containerization, and Docker containers. Practical Site Reliability Engineering teaches you to set up and sustain containerized cloud environments, and also covers architectural and design patterns and reliability implementation techniques such as reactive programming, and languages such as Ballerina and Rust. In the concluding chapters, you will get well-versed with service mesh solutions such as Istio and Linkerd, and understand service resilience test practices, API gateways, and edge/fog computing. By the end of this book, you will have gained experience on working with SRE concepts and be able to deliver highly reliable apps and services. What you will learn Understand how to achieve your SRE goals Grasp Docker-enabled containerization concepts Leverage enterprise DevOps capabilities and Microservices architecture (MSA) Get to grips with the service mesh concept and frameworks such as Istio and Linkerd Discover best practices for performance and resiliency Follow software reliability prediction approaches and enable patterns Understand Kubernetes for container and cloud orchestration Explore the end-to-end software engineering process for the containerized world Who this book is for Practical Site Reliability Engineering helps software developers, IT professionals, DevOps engineers, performance specialists, and system engineers understand how the emerging domain of SRE comes handy in automating and accelerating the process of designing, developing, debugging, and deploying highly reliable applications and services.

Hands-On Reactive Programming in Spring 5 Oleh Dokuka 2018-10-08 Today, businesses need a new type of system that can remain responsive at all times. This result is achievable and is called reactive, which means it reacts to changes. The development of such systems is a complex task, requiring a deep understanding of the domain. The developers of the Spring Framework help with the reactive version

RxJS in Action Paul Daniels 2017-07-20 Summary RxJS in Action gives you the development skills you need to create reactive applications with RxJS. This book is full of theory and practical examples that build on each other and help you begin thinking in a reactive manner. Foreword by Ben Lesh, Project lead, RxJS 5.

Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology On the web, events and messages flow constantly between UI and server components. With RxJS, you can filter, merge, and transform these streams directly, opening the world of data flow programming to browser-based apps. This JavaScript implementation of the ReactiveX spec is perfect for on-the-fly tasks like autocomplete. Its asynchronous communication model makes concurrency much, much easier. About the Book RxJS in Action is your guide to building a reactive web UI using RxJS. You'll begin with an intro to stream-based programming as you explore the power of RxJS through practical examples. With the core concepts in hand, you'll tackle production techniques like error handling, unit testing, and interacting with frameworks like React and Redux. And because RxJS builds on ideas from the world of functional programming, you'll even pick up some key FP concepts along the way. What's Inside Building clean, declarative, fault-tolerant applications Transforming and composing streams Taming asynchronous processes Integrating streams with third-party libraries Covers RxJS 5 About the Reader This book is suitable for readers comfortable with JavaScript and standard web application architectures. About the Author Paul P. Daniels is a professional software engineer with experience in .NET, Java, and JavaScript. Luis Atencio is a software engineer working daily with Java, PHP, and JavaScript platforms, and author of Manning's Functional Programming in JavaScript. Table of Contents PART 1 - UNDERSTANDING STREAMS Thinking reactively Reacting with RxJS Core operators It's about time you used RxJS PART 2 - OBSERVABLES IN PRACTICE Applied reactive streams Coordinating business processes Error handling with RxJS PART 3 MASTERING RXJS Heating up observables Toward testable, reactive programs RxJS in the wild

Advanced Python Programming Dr. Gabriele Lanaro 2019-02-28 Create distributed applications with clever design patterns to solve complex problems Key Features Set up and run distributed algorithms on a cluster using Dask and PySpark Master skills to accurately implement concurrency in your code Gain practical experience of Python design patterns with real-world examples Book Description This Learning Path shows you how to leverage the power of both native and third-party Python libraries for building robust and responsive applications. You will learn about profilers and reactive programming, concurrency and parallelism, as well as tools for making your apps quick and efficient. You will discover how to write code for parallel architectures using TensorFlow and Theano, and use a cluster of computers for large-scale computations using technologies such as Dask and PySpark. With the knowledge of how Python design patterns work, you will be able to clone objects, secure interfaces, dynamically choose algorithms, and accomplish much more in high performance computing. By the end of this Learning Path, you will have the skills and confidence to build engaging models that quickly offer efficient solutions to your problems. This Learning Path includes content from the following Packt products: Python High Performance - Second Edition by Gabriele Lanaro Mastering Concurrency in Python by Quan Nguyen Mastering Python Design Patterns by Sakis Kasampalis What you will learn Use NumPy and pandas to import and manipulate datasets Achieve native performance with Cython and Numba Write asynchronous code using asyncio and RxPy Design highly scalable programs with application scaffolding Explore abstract methods to maintain data consistency Clone objects using the prototype pattern Use the adapter pattern to make incompatible interfaces compatible Employ the strategy pattern to dynamically choose an algorithm Who this book is for This Learning Path is specially designed for Python developers who want to build high-performance applications and learn about single core and multi-core programming, distributed concurrency, and Python design patterns. Some experience with Python programming language will help you get the most out of this Learning Path.

Reactive Programming for .NET Developers Antonio Esposito 2016-07-29 Get up and running with reactive programming paradigms to build fast, concurrent, and powerful 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 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 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 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 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.

Mastering Java 11 Edward Lavieri 2018-09-27 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.

Concurrency in C# Cookbook Stephen Cleary 2014-05-15 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, thread-safe, and producer/consumer collections Cancellation support in your concurrent code Asynchronous-friendly Object-Oriented Programming Thread synchronization for accessing data

Learning RxJava Nick Samoylov 2020-02-28 Updated with the latest Maven 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 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 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 learn Discover different ways to create Observables, Observers, and Subscribers Multicast in order to push data to multiple destinations and cache and replay them Express RxJava idiomatically with the help of Kotlin features such as extension functions and data 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 understanding the key concepts covered in this book.

Hands-On Reactive Programming with Clojure Konrad Szyldo 2019-01-25 Learn how to use RxClojure to deal with stateful computations Key Features Leverage the features of Functional Reactive Programming using Clojure Create dataflow-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 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 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 gained all the knowledge you need to create applications using different Reactive Programming approaches. What you will learn Understand how to think in terms of time-varying values and event streams Create, compose, and transform observable sequences using Reactive extensions Build a CES framework from scratch using core.async as its foundation Develop a simple ClojureScript game using ReagIntegrate Om and RxJS in a web application Implement a reactive API in Amazon Web Services (AWS) Discover helpful approaches to backpressure and error handling Get to grips with futures and their applications Who 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.

Vert.x in Action Julien Ponge 2020-12-01 Vert.x in Action teaches you how to build production-quality reactive applications in Java. This book covers core Vert.x concepts, as well as the fundamentals of asynchronous and reactive programming. Learn to develop microservices by using Vert.x tools for database communications, persistent messaging, and test app resiliency. The patterns and techniques included here transfer to reactive technologies and frameworks beyond Vert.x. Summary As enterprise applications become larger and more distributed, new architectural approaches like reactive designs, microservices, and event streams are required knowledge. The Vert.x framework provides a mature, rock-solid toolkit for building reactive applications using Java, Kotlin, or Scala. Vert.x in Action teaches you to build responsive, resilient, and scalable JVM applications with Vert.x using well-established reactive design patterns. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Vert.x is a collection of libraries for the Java virtual machine that simplify event-based and asynchronous programming. Vert.x applications handle tedious tasks like asynchronous communication, concurrent work, message and data persistence, plus they're easy to scale, modify, and maintain. Backed by the Eclipse Foundation and used by Red Hat and others, this toolkit supports code in a variety of languages. About the book Vert.x in Action teaches you how to build production-quality reactive applications in Java. This book covers core Vert.x concepts, as well as the fundamentals of asynchronous and reactive programming. Learn to develop microservices by using Vert.x tools for database communications, persistent messaging, and test app resiliency. The patterns and techniques included here transfer to reactive technologies and frameworks beyond Vert.x. What's inside Building reactive services Responding to external service failures Horizontal scaling Vert.x toolkit architecture and Vert.x testing Deploying with Docker and Kubernetes About the reader For intermediate Java web developers. About the author Julien Ponge is a principal software engineer at Red Hat, working on the Eclipse Vert.x project. Table of Contents PART 1 - FUNDAMENTALS OF ASYNCHRONOUS PROGRAMMING WITH VERT.X 1 Vert.x, asynchronous programming, and reactive systems 2 Vertices: The basic processing units of Vert.x 3 Event bus: The backbone of a Vert.x application 4 Asynchronous data and event streams 5 Beyond callbacks 6 Beyond the event bus PART 2 - DEVELOPING REACTIVE SERVICES WITH VERT.X 7 Designing a reactive application 8 The web stack 9 Messaging and event streaming with Vert.x 10 Persistent state management with databases 11 End-to-end real-time reactive event processing 12 Toward responsiveness with load and chaos testing 13 Final notes: Container-native Vert.x

Rapid Java Persistence and Microservices Raj Malhotra 2019-06-19 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 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 interested in microservices.

Reactive Programming with Swift 4 Navdeep Singh 2018-02-27 Learn how to solve blocking user experience and build event based reactive applications with Swift. Key Features Build fast and scalable apps with RxSwift Apply reactive programming to solve complex problems and build efficient programs with reactive user interfaces Take expressiveness, scalability, and maintainability of your Swift code to the next level with this practical guide Book Description RxSwift belongs to a large family of Rx implementations in different programming languages that share almost identical syntax and semantics. Reactive approach will help you to write clean, cohesive, resilient, scalable, and maintainable code with highly configurable behavior. This book will introduce you to the world of reactive programming, primarily focusing on mobile platforms. It will tell how you can benefit from using RxSwift in your projects, existing or new. Further on, the book will demonstrate the unbelievable ease of configuring asynchronous behavior and other aspects of the app that are traditionally considered to be hard to implement and maintain. It will explain what Rx is made of, and how to switch to reactive way of thinking to get the most out of it. Also, test production code using RxTest and the red/green approach. Finally, the book will dive into real-world recipes and show you how to build a real-world app by applying the reactive paradigm. By the end of the book, you'll be able to build a reactive swift application by leveraging all the concepts this book takes you through. What you will learn Understand the practical benefits of Rx on a mobile platform Explore the building blocks of Rx, and Rx data flows with marble diagrams Learn how to convert an existing code base into RxSwift code base Learn how to debug and test your Rx Code Work with Playgrounds to transform sequences by filtering them using map, flatmap and other operators Learn how to combine different operators to work with Events in a more controlled manner. Discover Rx Cocoa and convert your simple UI elements to Reactive components Build a complete RxSwift app using MVVM as design pattern Who this book is for This book is for the developers who are familiar with Swift and iOS application development and are looking out to reduce the complexity of their apps. Prior experience of reactive programming is not necessary.

Asynchronous Android Programming Helder Vasconcelos 2016-07-29 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 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 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 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 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. 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 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 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 concepts feature illustrations to help you understand the complex interactions between Android entities.

Hands-On Microservices with Kotlin Juan Antonio Medina Iglesias 2018-01-29 Kotlin has been the buzzword among developers ever since the release of new features in Kotlin 1.1. With Google's announcement of introducing first class support for Kotlin in their Android ecosystem, it's high time that Kotlin is realized as a mainstream language. Microservices aids in designing scalable, easy-to-maintain web applications. If ...

Reactive Programming with Kotlin (Second Edition) raywendelrich Tutorial Team 2020-08-08 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 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!

Reactive Programming in Java Using RxJava 3.x Basics Strong 2020 Build next-gen programming skills using RxJava 3.0 and Reactive Streams About This Video Become proficient in Reactive programming using RxJava 3.x Explore different Reactive Streams and learn about their implementation Understand how different operators and observables work in Java In Detail In this course, you'll learn about Reactive programming and libraries such as RxJava and Reactor that are designed to keep the application responsive and make the system more resilient. The course starts by helping you understand the fundamentals of RxJava to make it easy for you to learn advanced topics such as the Reactive Manifesto, callbacks, callback hell, sync vs async, concurrent vs parallel, and the observer design pattern. As you advance, you'll also dive into the concepts of observable and observers, operators, combining observables, and replaying caching and subjects. You'll then explore concurrency and parallelism and get to grips with buffering, throttling, and switching. By the end of the course, you'll have developed a solid understanding of Reactive programming concepts and RxJAVA.

Hands-On Spring Security 5 for Reactive Applications Tomcy John 2018-07-31 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, 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 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 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.

Reactive Design Patterns Jamie Allen 2017-02-21 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. Table of Contents PART 1 - INTRODUCTION Why Reactive? A walk-through of the Reactive Manifesto Tools of the trade PART 2 - THE PHILOSOPHY IN A NUTSHELL Message passing Location transparency Divide and conquer Principled failure handling Delimited consistency Nondeterminism by need Message flow PART 3 - PATTERNS Testing reactive applications Fault tolerance and recovery patterns Replication patterns Resource-

management patterns Message flow patterns Flow control patterns State management and persistence patterns

Advanced Guide to Python 3 Programming John Hunt 2019-09-18 Advanced Guide to Python 3 Programming delves deeply into a host of subjects that you need to understand if you are to develop sophisticated real-world programs. Each topic is preceded by an introduction followed by more advanced topics, along with numerous examples, that take you to an advanced level. There are nine different sections within the book covering Computer Graphics (including GUIs), Games, Testing, File Input and Output, Databases Access, Logging, Concurrency and Parallelism, Reactive programming, and Networking. Each section is self-contained and can either be read on its own or as part of the book as a whole. This book is aimed at the those who have learnt the basics of the Python 3 language but want to delve deeper into Python's eco system of additional libraries and modules, to explore concurrency and parallelism, to create impressive looking graphical interfaces, to work with databases and files and to provide professional logging facilities.

Nick Samoylov 2020-02-28

Thomas Nield 2017-07-31 Build concurrent, easy to maintain, and responsive applications in Java About This Book* Explore the essential tools and operators RxJava provides, and know which situations to use them in* Delve into Observables and Subscribers, the core components of RxJava used for building scalable and performant reactive applications* Delve into the practical implementation of tools to effectively take on complex tasks such as concurrency and backpressure Who This Book Is For The primary audience for this book is developers with at least a fundamental mastery of Java. Some readers will likely be interested in RxJava to make programs more resilient, concurrent, and scalable. Others may be checking out reactive programming just to see what it is all about, and to verify whether it can solve any problems they may have. What you will learn* Understand how reactive programming works and the mindset to "think reactively."* Readers will have a fundamental understanding of Observables and how they work.* Understand how operators work, such as Transforming Observables, Error Handling Operators, Observable Utility Operators, Conditional and Boolean Operators, and Connectable Observable Operators.* Combine Observables and learn when to use which operator.* Leverage new operators that can cache one or more emissions for new Subscribers.* Learn about concurrency and parallelization in RxJava, and get an abstract understanding of how it works.* Knowing how backpressure works, when it should be used, and how to use it.* Expressing operators with Kotlin lambdas as well as leveraging extension functions to create your own operators.* Practical application of RxJava to Android apps. In Detail RxJava is a library for composing asynchronous and event-based programs using Observable sequences for the Java VM, which will help you build robust reactive applications. Learning RxJava addresses all the fundamentals of reactive programming to help readers write code and teach them an effective approach to solving problems. Starting with a brief introduction to reactive programming concepts, you will immerse yourself in Observables and Subscribers - the core components of RxJava. The book discusses concurrency and parallelization and how RxJava remains highly performant with no need for synchronization. You will learn about switching, throttling, windowing, and buffering to cope with high-producing Observables without backpressure. You will be able to further remove redundancy by creating reusable reactive operations. The book will teach you various ways to test and debug reactive RxJava applications. Finishing off with an exploration of RxJava apps on Android and Kotlin, this book will teach you to think reactively from the ground-up and build reactive applications.

Learning RxJava - Second Edition
Learning Rxjava