

Functional Programming Scala Paul Chiusano

If you have a working knowledge of Haskell, this hands-on book shows you how to use the language's many APIs and frameworks for writing both parallel and concurrent programs. You'll learn how parallelism exploits multicore processors to speed up computation-heavy programs, and how concurrency enables you to write programs with threads for multiple interactions. Author Simon Marlow walks you through the process with lots of code examples that you can run, experiment with, and extend. Divided into separate sections on Parallel and Concurrent Haskell, this book also includes exercises to help you become familiar with the concepts presented: Express Presents an introduction to the new programming language for the Java Platform.

Discover the power that functional programming brings to your Scala code. This international bestseller has been revised with new exercises, annotations, and full coverage of Scala 3. The first edition of Functional Programming in Scala has helped over 30,000 developers discover the power of functional programming. This second edition is fully updated to Scala 3 and the latest standards of FP. Inside, you'll find a serious tutorial for programmers looking to apply functional programming to improve their everyday coding practices. Functional Programming in Scala, Second Edition teaches you functional programming from first principles using the powerful Scala language. You'll develop the unique skills you need to start thinking functionally through hands-on exercises and coding challenges. Now to the revised second edition, each exercise comes with extensive annotations to help you understand functional programming in-depth. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Functional Programming in Kotlin is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. Based on the bestselling Functional Programming in Scala, this book guides intermediate Java and Kotlin programmers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll take on the challenge of learning functional programming from first principles, and start writing Kotlin code that's easier to read, easier to reuse, better for concurrency, and less prone to bugs and errors. Functional Programming in Kotlin is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. Based on the bestselling Functional Programming in Scala, this book guides intermediate Java and Kotlin programmers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. The book will deliver practical mastery of FP using Kotlin and a valuable perspective on program design that you can apply to other languages. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

A Beginner's Guide to Scala, Object Orientation and Functional Programming

Functional and Reactive Domain Modeling

Exploring Clojure, Elixir, Haskell, Scala, and Swift

Parallel and Concurrent Programming in Haskell

Functional Programming in Kotlin

Learn how to use, deploy, and maintain Apache Spark with this comprehensive guide, written by the creators of the open-source cluster-computing framework. With an emphasis on improvements and new features in Spark 2.0, authors Bill Chambers and Matei Zaharia break down Spark topics into distinct sections, each with unique goals. You'll explore the basic operations and common functions of Spark's structured APIs, as well as Structured Streaming, a new high-level API for building end-to-end streaming applications. Developers and system administrators will learn the fundamentals of monitoring, tuning, and debugging Spark, and explore machine learning techniques and scenarios for employing MLlib, Spark's scalable machine-learning library. Get a gentle overview of big data and Spark Learn about DataFrames, SQL, and Datasets—Spark's core APIs—through worked examples Dive into Spark's low-level APIs, RDDs, and execution of SQL and DataFrames Understand how Spark works on a cluster Debug, monitor, and tune Spark clusters and applications Learn the power of Structured Streaming, Spark's stream-processing engine Learn how you can apply MLlib to a variety of problems, including classification or recommendation

Banning with the help of computers, the book provides an in-depth analysis of various constructs of C. The key topics include iterative and decision-control statements, functions, recursion, arrays, strings, pointers, structures and unions, and file management. It deals separately with thefundamental concepts of linked lists- the preferred data structure for dynamic allocation of memory. The book also includes a chapter on different searching and sorting algorithms and analysis of time and space complexity of algorithms.

With its flexibility for programming both small and large projects, Scala is an ideal language for teaching beginning programming. Yet there are no textbooks on Scala currently available for the CSI/CS2 levels. Introduction to the Art of Programming Using Scala presents many concepts from CS1 and CS2 using a modern, JVM-based language that works we Starter Kit Includes C++ compiler and IDE for Windows, Mac & Linux In just 24 lessons of one hour or less, you can learn the basics of programming with C+++one of the most popular and powerful programming languages ever created. Using a straightforward, step-by-step approach, this fast and friendly tutorial teaches you everything you need to know, from installing and using a compiler, to debugging the programs you've created, to what's coming in C++0x, the next version of C++. Each lesson builds on what you've already learned, giving you a solid understanding of the basics of C++ programming concepts and techniques. Step-by-step instructions carefully walk you through the most common C++ programming tasks Quizzes and Exercises at the end of each chapter help you test yourself to make sure you're ready to go on Starter Kit software provides everything you need to create and compile C++ programs on any platform-Windows, Mac or Linux Learn how to... Install and use a C++ compiler for Windows, Mac OS X or Linux Build object-oriented programs in C++ Master core C++ concepts such as functions, classes, arrays, and pointers Add rich functionality with linked lists and templates Debug your programs for flawless code Learn exception and error-handling techniques Discover what's new in C++0x, the next version of C++ Jesse Liberty is the author of numerous books on software development, including best selling titles on C++ and .NET. He is the president of Liberty Associates, Inc. where he provides custom programming, consulting, and training. Rogers Cadenhead is a web application developer who has written many books on Internet-related topics, including Teach Yourself Java in 24 Hours. He maintains this book's official website at http://cplplus.cadenhead.org. CD-ROM Includes C++ compiler Visual development environment for Windows, Mac and Linux Source code for the book's examples Register your book at informit.com/register for convenient access to updates and corrections as they become available.

A Companion Booklet to Functional Programming in Scala

Reactive Web Applications

Techniques for Multicore and Multithreaded Programming

Scala Concurrency

Mastering Functional Programming

This full-color booklet contains chapter notes, hints, solutions to exercises, addenda, and errata for the book "Functional Programming in Scala" by Paul Chiusano and Rúnar Bjarnason. This material is freely available online, but is compiled here as a convenient companion to the book itself. All code is colorfully syntax-highlighted.

Hands-on Scala teaches you how to use the Scala programming language in a practical, project-based fashion. This book is designed to quickly teach an existing programmer everything needed to go from "hello world" to building production applications like interactive websites, parallel web crawlers, and distributed systems in Scala. In the process you will learn how to use the Scala language to solve challenging problems in an elegant and intuitive manner.

Summary Scala in Action is a comprehensive tutorial that introduces Scala through clear explanations and numerous hands-on examples. Because Scala is a rich and deep language, it can be daunting to absorb all the new concepts at once. This book takes a "how-to" approach, explaining language concepts as you explore familiar programming challenges that you face in your day-to-day work. About the Technology Scala runs on the JVM and combines object-orientation with functional programming. It's designed to produce succinct, type-safe code, which is crucial for enterprise applications. Scala implements Actor-based concurrency through the amazing Akka framework, so you can avoid Java's messy threading while interacting seamlessly with Java. About this Book Scala in Action is a comprehensive tutorial that introduces the language through clear explanations and numerous hands-on examples. It takes a "how to" approach, explaining language concepts as you explore familiar programming tasks. You'll tackle concurrent programming in Akka, learn to work with Scala and Spring, and learn how to build DSLs and other productivity tools. You'll learn both the language and how to use it. Experience with Java is helpful but not required. Ruby and Python programmers will also find this book accessible. What's Inside A Scala tutorial How to use Java and Scala open source libraries How to use SBT Test-driven development Debugging Updated for Scala 2.10 Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Author Nilanjay Raychaudhuri is a skilled developer, speaker, and an avid polyglot programmer who works with Scala on production systems. Table of Contents PART 1 SCALA: THE BASICS Why Scala? Getting started OOP in Scala Having fun with functional data structures Functional programming PART 2 WORKING WITH SCALA Building web applications in functional style Connecting to a database Building scalable and extensible components Concurrency programming in Scala Building confidence with testing PART 3 ADVANCED STEPS Interoperability between Scala and Java Scalable and distributed applications using Akka

Summary Functional and Reactive Domain Modeling teaches you how to think of the domain model in terms of pure functions and how to compose them to build larger abstractions. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Traditional distributed applications won't cut it in the reactive world of microservices, fast data, and sensor networks. To capture their dynamic relationships and dependencies, these systems require a different approach to domain modeling. A domain model composed of pure functions is a good way of representing a process in a reactive system, and it maps directly onto technologies and patterns like Akka, CORs, and event sourcing. About the Book Functional and Reactive Domain Modeling teaches you consistent, repeatable techniques for building domain models in reactive systems. This book reviews the relevant concepts of FP and reactive architectures and then methodically introduces this new approach to domain modeling. As you read, you'll learn where and how to apply it, even if your systems aren't purely reactive or functional. An expert blend of theory and practice, this book presents strong examples you'll return to again and again as you apply these principles to your own projects. What's Inside Real-world libraries and frameworks Establish meaningful reliability guarantees Isolate domain logic from side effects Introduction to reactive design patterns About the Reader Readers should be comfortable with functional programming and traditional domain modeling. Examples use the Scala language. About the Author Software architect Debashish Ghosh was an early adopter of reactive design using Scala and Akka. He's the author of DSLs in Action, published by Manning in 2010. Table of Contents Functional domain modeling: an introduction Scala for functional domain models Designing functional domain models Functional patterns for domain models Modularization of domain models Being reactive Modeling with reactive streams Reactive persistence and event sourcing Testing your domain model Summary - core thoughts and principles

Recipes for Object-Oriented and Functional Programming

Functional Programming in Scala, Second Edition

Scala in Action

Foundations of Multithreaded, Parallel, and Distributed Programming

Functional techniques for sequential and parallel programming with Scala

Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. The book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to their everyday work. The book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. Summary About the Technology Functional programming (FP) is a style of software development emphasizing functions that don't depend on program state. Functional code is easier to test and reuse, simpler to parallelize, and less prone to bugs than other code. Scala is an emerging JVM language that offers strong support for FP. Its familiar syntax and transparent interoperability with Java make Scala a great place to start learning FP. About the Book This book assumes no prior experience with functional programming. Some prior exposure to Scala or Java is helpful. What's Inside Functional programming concepts The whys and hows of FP How to write multicore programs Exercises and checks for understanding About the Authors Paul Chiusano and Rúnar Bjarnason are recognized experts in functional programming with Scala and are core contributors to the Scalaz library.

Save time and trouble when using Scala to build object-oriented, functional, and concurrent applications. With more than 250 ready-to-use recipes and 700 code examples, this comprehensive cookbook covers the most common problems you'll encounter when using the Scala language, libraries, and tools. It's ideal not only for experienced Scala developers, but also for programmers learning to use this JVM language. Author Alvin Alexander (creator of DevDay.com) provides solutions based on his experience using Scala for highly scalable, component-based applications that support concurrency and distribution. Packed with real-world scenarios, this book provides recipes for: Strings, numeric types, and control structures Classes, methods, objects, traits, and packaging Functional programming in a variety of situations Collections covering Scala's wealth of classes and methods Concurrency, using the Akka Actors library Using the Scala REPL and the Simple Build Tool (SBT) Web services on both the client and server sides Interacting with SQL and NoSQL databases Best practices in Scala development Helps programmers learn functional programming and apply it to the everyday business of coding. Original.

Scala is now an established programming language developed by Martin Odersky and his team at the EPFL. The name Scala is derived from Scala(ble) La(nguage). Scala is a multi-paradigm language, incorporating object oriented approaches with functional programming. Although some familiarity with standard computing concepts is assumed (such as the idea of compiling a program and executing this compiled from etc.) and with basic procedural language concepts (such as variables and allocation of values to these variables) the early chapters of the book do not assume any familiarity with object-oriented or functional programming. These chapters also step through other concepts with which the reader may not be familiar (such as list processing). From this background, the book provides a practical introduction to both object and functional approaches using Scala. These concepts are introduced through practical experience taking the reader beyond the level of the language syntax to the philosophy and practice of object oriented development and functional programming. Students and those actively involved in the software industry will find this comprehensive introduction to Scala invaluable.

Scala in Depth

Learn Scala Programming

Programming in C

Big Data Processing Made Simple

Programming in Scala

Provides information on concurrency programming using Akka, covering such topics as programming with actors, testing applications, coding with Scala's futures, and message-oriented programming and routing.

Explore functional programming and discover new ways of thinking about code. You know you need to master functional programming, but learning one functional language is only the start. In this book, through articles drawn from PragPub magazine and articles written specifically for this book, you'll explore functional thinking and functional style and idioms across languages. Led by expert guides, you'll discover the distinct strengths and approaches of Clojure, Elixir, Haskell, Scala, and Swift and learn which best suits your needs. Contributing authors: Rich Hickey, Stuart Halloway, Aaron Bedra, Michael Bevilacqua-Linn, Venkat Subramanian, Paul Callaghan, Jose Valim, Dave Thomas, Natasha Murashev, Tony Hillerson, Josh Chisholm, and Bruce Tate. Functional programming is on the rise because it lets you write simpler, cleaner code, and its emphasis on immutability makes it ideal for maximizing the benefits of multiple cores and distributed solutions. So far nobody's invented the perfect functional language - each has its unique strengths. In Functional Programming: A PragPub Anthology, you'll investigate the philosophies, tools, and idioms of five different functional programming languages. See how Clojure, the development language for iOS, encourages you to build highly scalable apps using functional techniques like map and reduce. Discover how Scala allows you to transition gently but deeply into functional programming without losing the benefits of the JVM, while with Lisp-based Clojure, you can plunge fully into the functional style. Learn about advanced functional concepts in Haskell, a pure functional language making powerful use of the type system with type inference and type classes. And see how functional programming is becoming more elegant and friendly with Elixir, a new functional language built on the powerful Erlang base. The industry has been embracing functional programming more and more, driven by the need for concurrency and parallelism. This collection of articles will lead you to mastering the functional approach to problem solving. So put on your explorer's hat and prepare to be surprised. The goal of exploration is always discovery. What You Need: Familiarity with one or more programming languages.

Learn functional data structures and algorithms for your applications and bring their benefits to your work now About This Book Moving from object-oriented programming to functional programming? This book will help you get started with functional programming. Easy-to-understand explanations of practical topics will help you get started with functional data structures. Illustrative diagrams to explain the algorithms in detail. Get hands-on practice of Scala to get the most out of functional programming. Who This Book Is For This book is for those who have some experience in functional programming languages. The data structures in this book are primarily written in Scala, however implementing the algorithms in other functional languages should be straightforward. What You Will Learn Learn to think in the functional paradigm Understand common data structures and the associated algorithms, as well as the context in which they are commonly used Take a look at the runtime and space complexities with the O notation See how ADTs are implemented in a functional setting Explore the basic theme of immutability and persistent data structures Find out how the internal algorithms are redesigned to exploit structural sharing, so that the persistent data structures perform well, avoiding needless copying. Get to know functional features like lazy evaluation and recursion used to implement efficient algorithms Gain Scala best practices and idioms In Detail Functional data structures have the power to improve the codebase of an application and improve efficiency. With the advent of functional programming and with powerful functional languages such as Scala, Clojure and Elixir becoming part of important enterprise applications, functional data structures have gained an important place in the developer toolkit. Immutability is a cornerstone of functional programming. Immutable and persistent data structures are thread safe by definition and hence very appealing for writing robust concurrent programs. How do we express traditional data structures in functional setting? Won't we end up copying too much? Do we trade performance for versioned data structures? This book attempts to answer these questions by looking at functional implementations of traditional algorithms. It begins with a refresher and consolidation of what functional programming is all about. Next, you'll get to know about Lists, the work horse data type for most functional languages. We show what structural sharing means and how it helps to make immutable data structures efficient and practical. Scala is the primary implementation languages for most of the examples. At times, we also present Clojure snippets to illustrate the underlying fundamental theme. While writing code, we use ADTs (abstract data types). Stacks, Queues, Trees and Graphs are all familiar ADTs. You will see how these ADTs are implemented in a functional setting. We look at implementation techniques like amortization and lazy evaluation to ensure efficiency. By the end of the book, you will be able to write efficient functional data structures and algorithms for your applications. Style and approach Step-by-step topics will help you get started with functional programming. Learn by doing with hands-on code snippets that give you practical experience of the subject.

Save time and trouble building object-oriented, functional, and concurrent applications with Scala. The latest edition of this comprehensive cookbook is packed with more than 250 ready-to-use recipes and 1,000 code examples to help you solve the most common problems when working with Scala 3 and its popular libraries. Scala changes the way you think about programming—and that's a good thing. Whether you're working on web, big data, or distributed applications, this cookbook provides recipes based on real-world scenarios for both experienced Scala developers and programmers just learning to use this JVM language. Author Alvin Alexander includes practical solutions from his experience using Scala for component-based, highly scalable applications that support concurrency and distribution. Recipes cover: Strings, numbers, and control structures Classes, methods, objects, traits, packaging, and imports Functional programming techniques Scala's wealth of collections classes and methods Building and publishing Scala applications with sbt Actors and concurrency with Scala Future and Akka Typed Popular libraries, including Spark, Scala.js, Play Framework, and GraalVM Types, such as variance, givens, intersections, and unions Best practices, including pattern matching, modules, and functional error handling

Functional Programming in Java

Learning Functional Data Structures and Algorithms

Scala in Action

Akka Cookbook

Chapter Notes, Errata, Hints, and Answers to Exercises

Summary Functional Programming in Scala teaches developers how to incorporate the most powerful benefits of functional programming into new and existing Java code. You'll learn to think functionally about coding tasks in Java and use FP to make your applications easier to understand, optimize, maintain, and scale. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Here's a bold statement: learn functional programming and you'll be a better Java developer. Fortunately, you don't have to master every aspect of FP to get a big payoff. If you take in a few core principles, you'll see an immediate boost in the scalability, usability, and maintainability of your code. And did we mention that you'll have fewer bugs? Let's get started! About the Book Functional Programming in Java teaches you how to incorporate the powerful benefits of functional programming into new and existing Java code. This book uses easy-to-grasp examples, exercises, and illustrations to teach core FP principles such as referential transparency, immutability, persistence, and laziness. Along the way, you'll discover which of the new functionality inspired features of Java 8 will help you most. What's Inside Writing code that's easier to read and reason about Safer concurrent and parallel programming Handling errors without exceptions Java 8 features like lambdas, method references, and functional interfaces About the Reader Written for Java developers with no previous FP experience. About the Author Pierre-Yves Saumont is a seasoned Java developer with three decades of experience designing and building enterprise software. He is an R&D engineer at Alcatel-Lucent Submarine Networks. Table of Contents What is functional programming? Using functions in Java Making Java more functional Recursion, concursion, and memoization Data handling with lists Dealing with optional data Handling errors and exceptions Advanced list handling Working with More data handling with trees Solving real java problems with advanced trees Handling state mutation in a functional way Functional input/output Sharing mutable state with actors Solving common problems functionally

In Functional Programming in Kotlin you will learn: Functional programming techniques for real-world applications Write common structures and idioms in functional design Simplicity and modularity (and fewer bugs!) Functional Programming in Kotlin is a reworked version of the bestselling Functional Programming in Scala, with all code samples, instructions, and exercises translated into the powerful Kotlin language. In this authoritative guide, you " I take on the challenge of learning functional programming from first principles. Complex concepts are demonstrated through exercises that you " I love to test yourself against. You " I start writing Kotlin code that " s easier to read, easier to reuse, better for concurrency, and less prone to bugs and errors. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Improve performance, increase maintainability, and eliminate bugs! How? By programming the functional way. Kotlin provides strong support for functional programming, taking a pragmatic approach that integrates well with OO codebases. By applying the techniques you " I learn in this book, your code will be safer, less prone to errors, and much easier to read and reuse. About the Book Functional Programming in Kotlin teaches you how to design and write applications using functional programming. Offering clear examples, carefully-presented explanations, and extensive exercises, it moves from basic subjects like types and data structures to advanced topics in the better! Functional Programming in Scala by Rúnar Bjarnason and Paul Chiusano. What's Inside Functional programming techniques for real-world situations Common structures and idioms in functional design Simplicity, modularity, and fewer bugs! About the reader For Kotlin developers. No functional programming experience required. About the author Martin Yermolov has two decades of programming experience in the JVM. Rúnar Bjarnason and Paul Chiusano are the authors of Functional Programming in Scala. Table of Contents PART 1 INTRODUCTION TO FUNCTIONAL PROGRAMMING 1 What is functional programming? 2 Getting started with functional programming in Kotlin 3 Functional data structures 4 Handling errors without exceptions 5 Strictness and laziness 6 Purely functional state PART 2 FUNCTIONAL DESIGN AND COMBINATOR LIBRARIES 7 Modularity, functional parallelism 8 Property-based testing 9 Parser combinators PART 3 COMMON STRUCTURES IN FUNCTIONAL DESIGN 10 Monoids 11 Monads and functors 12 Applicative and traversable functors PART 4 EFFECTS AND I/O 13 External effects and I/O 14 Local effects and mutable state 15 Stream processing and incremental I/O

In large projects, programmers tend to get overwhelmed by their complexity. It can be hard to keep track of all the interdependencies in the code-base and how its state changes on runtime. The solution to these problems is Functional Programming, a paradigm specifically designed to deal with the complexity of software development. Mastering ...

Summary Scala in Depth is a unique new book designed to help you integrate Scala effectively into your development process. By presenting the emerging best practices and designs from the Scala community, it guides you through dozens of powerful techniques example by example. About the Book Scala is a powerful JVM language that blends the functional and OO programming models. You'll have no trouble getting introductions to Scala in books or online, but it's hard to find great examples and insights from experienced practitioners. You'll find them in Scala in Depth. There's little heavy-handed theory here—just dozens of crisp, practical techniques for coding in Scala. Written for readers who know Java, Scala, or another OO language. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book. What's Inside Concise, expressive, and readable code style How to integrate Scala into your existing Java projects Scala's 2.8.0 collections API How to use actors for concurrent programming Mastering the Scala type system Scala's OO features—type member inheritance, multiple inheritance, and composition Functional concepts and patterns—immutability, applicative functors, and monads

Introduction to the Art of Programming Using Scala

Practical Functional Programming for the JVM

Scala for the Impatient

Fast-track your web development career using the powerful features of advanced JavaScript

Covers Play, Akka, and Reactive Streams

Learn how to use the Akka framework to build effective applications in Scala About This Book Covers a discussion on Lagom—the newest launched Akka framework that is built to create complex microservices easily The recipe approach of the book allows the reader to know important and independent concepts of Scala and Akka in a seamless manner Provides a comprehensive understanding of the Akka actor model and implementing it to create reactive web applications Who This Book Is For If you are a Scala developer who wants to build scalable and concurrent applications, then this book is for you. Basic knowledge of Akka will help you take advantage of this book. What You Will Learn Control an actor using the ControlAware mailbox Test a fault-tolerant application using the Akka test kit Create a parallel application using futures and agents Package and deploy Akka application inside Docker Deploy remote actors programmatically on different nodes Integrate Streams with Akka actors Install Lagom and create a Lagom project In Detail Akka is an open source toolkit that simplifies the construction of distributed and concurrent applications on the JVM. This book will teach you how to develop reactive applications in Scala using the Akka framework. This book will show you how to build concurrent, scalable, and reactive applications in Akka. You will see how to create high performance applications, extend applications, build microservices with Lagom, and more. We will explore Akka's actor model and show you how to incorporate concurrency into your applications. The book puts a special emphasis on performance improvement and how to make an application available for users. We also make a special mention of message routing and construction. By the end of this book, you will be able to create a high-performing Scala application using the Akka framework. Style and approach This highly practical recipe-based approach will allow you to build scalable, robust, and reactive applications using the Akka framework.

Summary Akka in Action is a comprehensive tutorial on building message-oriented systems using Akka. The book takes a hands-on approach, where each new concept is followed by an example that shows you how it works, how to implement the code, and how to (unit) test it. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Akka makes it relatively easy to build applications in the cloud or on-premise with many cores that efficiently use the full capacity of the computing power available. It's a toolkit that provides an actor programming model, a runtime, and required support tools for building scalable applications. About the Book Akka in Action shows you how to build message-oriented systems with Akka. This concise, hands-on tutorial introduces each concept with a working example. You'll start with the big picture of how Akka works, and then quickly build and deploy a fully functional REST service out of actors. You'll explore test-driven development and deploying and scaling fault-tolerant systems. After mastering the basics, you'll discover how to model immutable messages, implement domain models, and apply techniques like event sourcing and CORs. You'll also find a tutorial on building streaming applications using akka-stream and akka-http. Finally, you'll get practical advice on how to customize and extend your Akka system. What's Inside Getting concurrency right Testing and performance tuning Clustered and cloud-based applications Covers Akka version 2.4 About the Reader This book assumes that you're comfortable with Java and Scala. No prior experience with Akka required. About the Authors A software craftsman and architect, Raymond Roestenburg is an Akka committer. Rob Bakker specializes in concurrent back-end systems and systems integration. Rob Williams has more than 20 years of product development experience. Table of Contents Introducing Akka Up and running Test-driven development with actors Fault tolerance Futures Your first distributed Akka app Configuration, logging, and deployment Structural patterns for actors Routing messages Message channels Finite-state machines and agents System integration Streaming Clustering Actor persistence Performance tips Looking ahead

Introduces fundamental techniques for reasoning mathematically about functional programs. Ideal for a first- or second-year undergraduate course.

Get up to speed on Scala, the JVM language that offers all the benefits of a modern object model, functional programming, and an advanced type system. Packed with code examples, this comprehensive book shows you how to be productive with the language and ecosystem right away, and explains why Scala is ideal for today's highly scalable, data-centric applications that support concurrency and distribution. This second edition covers recent JVM language features, with new content on pattern matching, comprehensions, and advanced functional programming. You'll also learn about Scala's command-line tools, third-party tools, libraries, and language-aware plugins for editors and IDEs. This book is ideal for beginners and advanced Scala developers alike. Program faster with Scala's succinct and flexible syntax Dive into basic and advanced functional programming (FP) techniques Build killer big-data apps, using Scala's functional combinators Use traits for mixin composition and pattern matching for data extraction Learn the sophisticated type system that combines FP and object-oriented programming concepts Explore Scala-specific concurrency tools, including Akka Understand how to develop rich domain-specific languages Learn good design techniques for building scalable and robust Scala applications

Rust in Action

Hands-on Scala Programming: Learn Scala in a Practical, Project-Based Way

Thinking Functionally with Haskell

A comprehensive guide covering functional and reactive programming with Scala 2.13, Akka, and Lagom

Sams Teach Yourself C++ in 24 Hours

Rust in Action introduces the Rust programming language by exploring numerous systems programming concepts and techniques.You'll be learning Rust by delving into how computers work under the hood. You'll find yourself playing with persistent storage, memory, networking and even tinkering with CPU instructions. The book takes you through using Rust to extend other applications and teaches you tricks to write blindly fast code. You'll also discover parallel and concurrent programming. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

"Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. This Video Editions book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples that open up the world of functional programming. Functional programming (FP) is a style of software development emphasizing functions that don't depend on program state. Functional code is easier to test and reuse, simpler to parallelize, and less prone to bugs than other code. Scala is an emerging JVM language that offers strong support for FP. Its familiar syntax and transparent interoperability with Java make Scala a great place to start learning FP."-Resource description page.

Scala is a modern programming language for the Java Virtual Machine (JVM) that combines the best features of object-oriented and functional programming languages. Using Scala, you can write programs more concisely than in Java, as well as leverage the full power of concurrency. Since Scala runs on the JVM, it can access any Java library and is interoperable with Java frameworks. Scala for the Impatient concisely shows developers what Scala can do and how to do it. In this book, Cay Horstmann, the principal author of the international best-selling Core Java™, offers a rapid, code-based introduction that's completely practical. Horstmann introduces Scala concepts and techniques in "blog-sized" chunks that you can quickly master and apply. Hands-on activities guide you through well-defined stages of competency, from basic to expert. Coverage includes Getting started quickly with Scala's interpreter, syntax, tools, and unique idioms Mastering core language features: functions, arrays, maps, tuples, packages, imports, exception handling, and more Becoming familiar with object-oriented programming in Scala: classes, inheritance, and traits Using Scala for real-world programming tasks: working with files, regular expressions, and XML Working with higher-order functions and the powerful Scala collections library Leveraging Scala's powerful pattern matching and case classes Creating concurrent programs with Scala actors Implementing domain-specific languages Understanding the Scala type system Applying advanced "power tools" such as annotations, implicits, and delimited continuations Scala is rapidly reaching a tipping point that will reshape the experience of programming. This book will help object-oriented programmers build on their existing skills, allowing them to immediately construct useful applications as they gradually master advanced programming techniques.

Summary Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. The book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Functional programming (FP) is a style of software development emphasizing functions that don't depend on program state. Functional code is easier to test and reuse, simpler to parallelize, and less prone to bugs than other code. Scala is an emerging JVM language that offers strong support for FP. Its familiar syntax and transparent interoperability with Java make Scala a great place to start learning FP. About the Book Functional Programming in Scala is a serious tutorial for programmers looking to learn FP and apply it to their everyday work. The book guides readers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. This book assumes no prior experience with functional programming. Some prior exposure to Scala or Java is helpful. What's Inside Functional programming concepts The whys and hows of FP How to write multicore programs Exercises and checks for understanding About the Authors Paul Chiusano and Rúnar Bjarnason are recognized experts in functional programming with Scala and are core contributors to the Scalaz library. Table of Contents PART 1 INTRODUCTION TO FUNCTIONAL PROGRAMMING What is functional programming? Getting started with functional programming in Scala Functional data structures Handling errors without exceptions Strictness and laziness Purely functional state PART 2 FUNCTIONAL DESIGN AND COMBINATOR LIBRARIES

Purely functional parallelism Property-based testing Parser combinators PART 3 COMMON STRUCTURES IN FUNCTIONAL DESIGN Monoids Monads Applicative and traversable functors PART 4 EFFECTS AND I/O External effects and I/O Local effects and mutable state Stream processing and incremental I/O

Functional Programming: a PragPub Anthology

Learning Scala

Spark: The Definitive Guide

Scalability = Functional Programming + Objects

Functional Programming in Scala Video Edition

Summary Reactive Web Applications teaches web developers how to benefit from the reactive application architecture and presents hands-on examples using the Play framework. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Reactive applications build on top of components that communicate asynchronously as they react to user and system events. As a result, they become scalable, responsive, and fault-tolerant. Java and Scala developers can use the Play Framework and the Akka concurrency toolkit to easily implement reactive applications without building everything from scratch. About the Book Reactive Web Applications teaches web developers how to benefit from the reactive application architecture and presents hands-on examples using Play, Akka, Scala, and Reactive Streams. This book starts by laying out the fundamentals required for writing functional and asynchronous applications and quickly introduces Play as a framework to handle the plumbing of your application. The book alternates between chapters that introduce reactive ideas (asynchronous programming with futures and actors, managing distributed state with CORs) and practical examples that show you how to build these ideas into your applications. What's Inside Reactive applications Architecture Basics of Play and Akka Examples in Scala Functional and asynchronous programming About Reader Description For readers comfortable programming with a higher-level language such as Java or C#, and who can read Scala code. No experience with Play or Akka needed. About the Author Manuel Bernhardt is a passionate engineer, author, and speaker. As a consultant, he guides companies through the technological and organizational transformation with distributed computing. Table of Contents PART 1 GETTING STARTED WITH REACTIVE WEB APPLICATIONS Did you say reactive? Your first reactive web application Functional programming primer Quick introduction to Play PART 2 CORE CONCEPTS Futures Actors Dealing with state Responsive user interfaces PART 3 ADVANCED TOPICS Reactive Streams Deploying reactive Play applications Testing reactive web applications

A step-by-step guide in building high-performance scalable applications with the latest features of Scala. Key Features Develop a strong foundation in functional programming and Scala's Standard Library (STL) Get a detailed coverage of Lightweight Lagom—the latest microservices framework from Lightweight Understand the Akka framework and learn event-based Programming with Scala Book Description The second version of Scala has undergone multiple changes to support features and library implementations. Scala 2.13, with its main focus on modularizing the standard library and simplifying collections, brings with it a host of updates. Learn Scala in Action addresses both technical and architectural applications to the redesigned standard library and collections, along with covering in-depth type systems and first-level support for functions. You will discover how to leverage implicits as a primary mechanism for building type classes and look at different ways to test Scala code. You will also learn about abstract building blocks used in functional programming, giving you sufficient understanding to pick and use any existing functional programming library out there. In the concluding chapters, you will explore reactive programming by covering the Akka framework and reactive streams. You

the end of this book, you will have built microservices and learned to implement them with the Scala and Lagom framework. What you will learn Acquaint yourself with the new standard library of Scala 2.13 Get to grips with the Grok functional paradigms Get familiar with type system to express domain constraints Understand the actor model and different Akka libraries Grasp the concept of building microservices using Lagom framework Deep dive into property-based testing and its practical applications Who this book is for This book is for beginner to intermediate level Scala developers who would like to advance and gain knowledge of the intricacies of the Scala language, expand their functional programming tools, and explore actor-based concurrency models.

Develop your JavaScript programming skills by learning strategies and techniques commonly used in modern full-stack application development Key Features Write and deploy full-stack applications efficiently with JavaScript Delve into JavaScript ' s multiple programming paradigms Get up to speed with core concepts such as modularity and functional programming to write efficient code Book Description In depth knowledge of JavaScript makes it easier to learn a variety of other frameworks, including React, Angular, and related tools and libraries. This book is designed to help you cover the core JavaScript concepts you need to build modern applications. You'll start by learning how to represent an HTML document in the Document Object Model (DOM). Then, you'll combine your knowledge of the DOM and Node.js to create a web scraper for practical situations. As you read through further lessons, you'll create a Node.js-based RESTful API using the Express library for Node.js. You'll also understand how modular designs can be used for better reusability and collaboration with multiple developers on a single project. Later lessons will guide you through building unit tests, which ensure that the core functionality of your program is not affected over time. The book will also demonstrate how constructors, async/await, and events can load your applications quickly and efficiently. Finally, you'll gain useful insights into functional programming concepts such as immutability, pure functions, and higher-order functions. By the end of this book, you'll have the skills you need to tackle any real-world JavaScript development problem using a modern JavaScript approach, both for the client and server sides. What you will learn Apply the core concepts of functional programming Build a Node.js project that uses the Express.js library to host an API Create unit tests for a Node.js project to validate it Use the Cheerio library with Node.js to create a basic web scraper Develop a React interface to build processing flows Use callbacks as a basic way to bring control back Who this book is for If you want to advance from being a frontend developer to a full-stack developer and learn how Node.js can be used for hosting full-stack applications, this is an ideal book for you. After reading this book, you'll be able to write better JavaScript code and learn about the latest trends in the language. To easily grasp the concepts explained here, you should know the basic syntax of JavaScript and should've worked with popular frontend libraries such as jQuery. You should have also used JavaScript with HTML and CSS but not necessarily Node.js.

Summary Play for Scala shows you how to build Scala-based web applications using the Play 2 framework. This book starts by introducing Play through a comprehensive overview example. Then, you'll look at each facet of a typical Play application both by exploring simple code snippets and by adding to a larger running example. Along the way, you'll deepen your knowledge of Scala as a programming language and work with tools like Akka. About this Book Play is a Scala web framework with built-in advantages: Scala's strong type system helps deliver bug-free code, and the Akka framework helps achieve hassle-free concurrency and peak performance. Play builds on the web's stateless nature for excellent scalability, and because it is event-based and nonblocking, you'll find it to be great for near real-time applications. Play for Scala teaches you to build Scala-based web applications using Play 2. It gets you going with a comprehensive overview example. It then explores each facet of a typical Play application by walking through sample code snippets and adding features to a running example. Along the way, you'll deepen your knowledge of Scala and learn to work with tools like Akka. Written for readers familiar with Scala and web-based application architectures. No knowledge of Play is assumed. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. What's Inside Intro to Play 2 Play's MVC structure Mastering Scala templates and forms Persisting data and using web services Using Play's advanced features About the Authors Peter Hiltonv, Erik Bakker, and Francisco Canedo, are engineers at Lunafetch, a consultancy with Scala and Play expertise. They are contributors to the Play framework. Table of Contents PART 1: GETTING STARTED Introduction to Play Your first Play application PART 2: CORE FUNCTIONALITY Deconstructing Play application architecture Defining the application's HTTP interface Storing data—the persistence layer Building a user interface with view templates Validating and processing input with the forms API PART 3: ADVANCED CONCEPTS Building a single-page JavaScript application with JSON Play and more Web services, iteratees, and WebSockets

Scala Cookbook

Play for Scala

Programming Scala

Type-Driven Development with Idris

Get Programming with Scala

Foundations of Multithreaded, Parallel, and Distributed Programming covers, and then applies, the core concepts and techniques needed for an introductory course in this subject. Its emphasis is on the practice and application of parallel systems, using real-world examples throughout. Greg Andrews teaches the fundamental concepts of multithreaded, parallel and distributed computing and relates them to the implementation and performance processes. He presents the appropriate breadth of topics and supports these discussions with an emphasis on performance, but secondary, concern includes a number of case studies which cover such topics as pthreads, MPI, and OpenMP libraries, as well as programming languages like Java, Ada, high performance Fortran, Linda, Occam, and SR Provides examples using Java syntax and discusses how Java deals with monitors, sockets, and remote method invocation Covers current programming techniques such as semaphores, locks, barriers, monitors, message passing, and remote invocation Concrete examples are executed with complete programs, both shared and distributed Packed with examples and exercises, Get Programming with Scala is perfect starting point for developers with some OO knowledge who want to learn this multi-style programming language for the JVM, and pick up a few FP skills along the way. Master Scala, and you'll be well-equipped to match your programming approach to the type of problem you're dealing with. Packed with examples and exercises, Get Programming with Scala is perfect starting point for developers with some OO knowledge who want to learn this multi-style programming language for a programming approach to the type of problem you're dealing with. Get Programming with Scala teaches you the core skills you'll need to code with Scala. You'll start by reviewing OOP concepts in the Scala language. Then, you'll gradually open up the world of functional programming. You'll explore functions and types and learn how to combine them to create powerful, flexible abstractions. Scala can be daunting at first, especially if you're seeing FP ideas for the first time. Fortunately, with the examples and exercises in this book, you'll get over the initial learning curve. free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Summary Type-Driven Development with Idris, teaches you how to improve the performance and accuracy of your programs by taking advantage of a state-of-the-art type system. This book teaches you with Idris, a language designed to support type-driven development. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Stop fighting type errors! Type-driven development is an approach to coding that embraces types as the foundation of your code. With this approach, you can define specifications early in development and write code that's easy to maintain, test, and extend. Idris is a Haskell-like language with first-class, dependent types that's perfect for learning type-driven programming techniques you can apply in any codebase. About the Book Type-Driven Development with Idris teaches you how to improve the performance and accuracy of your code by taking advantage of a state-of-the-art type system. In this book, you'll learn type-driven development of real-world software, as well as how to harness the power of dependent types in Idris and apply type-driven development methods to other languages. What's Inside Understanding dependent types Types as first-class language constructs Types as a guide to program construction Expressing relationships between data About the Author Edwin Brady leads the design and implementation of the Idris language. Table of Contents PART 1 - INTRODUCTION Overview Getting started with IdrisPART 2 - CORE IDRIS Interactive development with types

types Interfaces: using constrained generic types Equality: expressing relationships between data Predicates: expressing assumptions and contracts in types Views: extending pattern matching PART 3 - IDRIS AND THE REAL WORLD Streams and processes: working with infinite data Writing programs with state State machines: verifying protocols in types Dependent state machines: handling feedback and errors Type-safe concurrent programming Why learn Scala? You don't need to be a data scientist or distributed computing expert to appreciate this object-oriented functional programming language. This practical book provides a comprehensive yet approachable introduction to the language, complete with syntax diagrams, examples, and exercises. You'll start with Scala's core types and syntax before diving into higher-order functions and immutable data structures. Author Jason Swartz demonstrates why Scala's concise and expressive syntax make it an ideal language for Ruby or Python developers who want to improve their code. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Stop fighting type errors! Type-driven development is an approach to coding that embraces types as the foundation of your code. With this approach, you can define specifications early in development and write code that's easy to maintain, test, and extend. Idris is a Haskell-like language with first-class, dependent types that's perfect for learning type-driven programming techniques you can apply in any codebase. About the Book Type-Driven Development with Idris teaches you how to improve the performance and accuracy of your code by taking advantage of a state-of-the-art type system. In this book, you'll learn type-driven development of real-world software, as well as how to harness the power of dependent types in Idris and apply type-driven development methods to other languages. What's Inside Understanding dependent types Types as first-class language constructs Types as a guide to program construction Expressing relationships between data About the Author Edwin Brady leads the design and implementation of the Idris language. Table of Contents PART 1 - INTRODUCTION Overview Getting started with IdrisPART 2 - CORE IDRIS Interactive development with types

Covers Play 2. How functional techniques improve your Java programs Functional Programming in Scala Professional JavaScript