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Functional Programming, Simplified Functional Programming in Scala *Scala Cookbook* **Functional programming simplified** Programming Scala **Programming in Scala Scala Cookbook** *Scala for the Impatient* **Modern Programming Made Easy** Hands-on Scala Programming: Learn Scala in a Practical, Project-Based Way **Learning Scala Get Programming with Scala Introduction to the Art of Programming Using Scala** Hello, Scala **Scala in Depth Scala Programming Projects Learning Concurrent Programming in Scala Scala in Action Pragmatic Scala** Scala for Java Developers **Functional Programming in Scala, Second Edition** *Grokking Simplicity* Steps in Scala **Functional and Reactive Domain Modeling The Science of Functional Programming (draft version) Pure functional HTTP APIs in Scala** *TORUS 1 - Toward an Open Resource Using Services* **Spark: The Definitive Guide** *Practical FP in Scala: a Hands-On Approach (2nd Edition)* **Scala Programming Programming Erlang** *Scala for Data Science Scala Design Patterns* Category Theory for Programmers (New Edition, Hardcover) *Machine Learning with Scala Quick Start Guide* **Scala Functional Programming Patterns Beginning Scala 3 Programming Scala Grokking Functional Programming Beginning Scala**

"For developers who know an OOP language like Java, Python, or C#. No experience with Scala or functional programming required"-- Back cover. There’s no need to fear going functional! This friendly, lively, and engaging guide is perfect for any perplexed programmer. It lays out the principles of functional programming in a simple and concise way that will help you grok what FP is really all about. In Grokking Functional Programming you will learn: Designing with functions and types instead of objects Programming with pure functions and immutable values Writing concurrent programs using the functional style Testing functional programs Multiple learning approaches to help you grok each new concept If you’ve ever found yourself rolling your eyes at functional programming, this is the book for you. Open up Grokking Functional Programming and you’ll find functional ideas mapped onto what you already know as an object-oriented programmer. The book focuses on practical aspects from page one. Hands-on examples apply functional principles to everyday programming tasks like concurrency, error handling, and improving readability. Plus, puzzles and exercises let you think and practice what you're learning. You’ll soon reach an amazing “aha” moment and start seeing code in a completely new way. About the technology Finally, there’s an easy way to learn functional programming! This unique book starts with the familiar ideas of OOP and introduces FP step-by-step using relevant examples, engaging exercises, and lots of illustrations. You’ll be amazed at how quickly you’ll start seeing software tasks from this valuable new perspective. About the book Grokking Functional Programming introduces functional programming to imperative developers. You’ll start with small, comfortable coding tasks that expose basic concepts like writing pure functions and working with immutable data. Along the way, you’ll learn how to write code that eliminates common bugs caused by complex distributed state. You’ll also explore the FP approach to IO, concurrency, and data streaming. By the time you finish, you’ll be writing clean functional code that’s easy to

understand, test, and maintain. What's inside Designing with functions and types instead of objects Programming with pure functions and immutable values Writing concurrent programs using the functional style Testing functional programs About the reader For developers who know an object-oriented language. Examples in Java and Scala. About the author Michal Plachta is an experienced software developer who regularly speaks and writes about creating maintainable applications. Table of Contents Part 1 The functional toolkit 1 Learning functional programming 2 Pure functions 3 Immutable values 4 Functions as values Part 2 Functional programs 5 Sequential programs 6 Error handling 7 Requirements as types 8 IO as values 9 Streams as values 10 Concurrent programs Part 3 Applied functional programming 11 Designing functional programs 12 Testing functional programs Discover unique features and powerful capabilities of Scala Programming as you build projects in a wide range of domains Key FeaturesDevelop a range of Scala projects from web applications to big data analysisLeverage full power of modern web programming using Play FrameworkBuild real-time data pipelines in Scala with a Bitcoin transaction analysis appBook Description Scala is a type-safe JVM language that incorporates object-oriented and functional programming (OOP and FP) aspects. This book gets you started with essentials of software development by guiding you through various aspects of Scala programming, helping you bridge the gap between learning and implementing. You will learn about the unique features of Scala through diverse applications and experience simple yet powerful approaches for software development. Scala Programming Projects will help you build a number of applications, beginning with simple projects, such as a financial independence calculator, and advancing to other projects, such as a shopping application and a Bitcoin transaction analyzer. You will be able to use various Scala features, such as its OOP and FP capabilities, and learn how to write concise, reactive, and concurrent applications in a type-safe manner. You will also learn how to use top-notch libraries such as Akka and Play and integrate Scala apps with Kafka, Spark, and Zeppelin, along with deploying applications on a cloud platform. By the end of the book, you will not only know the ins and outs of Scala, but you will also be able to apply it to solve a variety of real-world problems What you will learnBuild, test, and package code using Scala Build ToolDecompose code into functions, classes, and packages for maintainabilityImplement the functional programming capabilities of ScalaDevelop a simple CRUD REST API using the Play frameworkAccess a relational database using SlickDevelop a dynamic web UI using Scala.jsSource streaming data using Spark Streaming and write a Kafka producerUse Spark and Zeppelin to analyze dataWho this book is for If you are an amateur programmer who wishes to learn how to use Scala, this book is for you. Knowledge of Java will be beneficial, but not necessary, to understand the concepts covered in this book. 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 ========== ========== Table of

Contents Scala—a blended language The core rules Modicum of style—coding conventions Utilizing object orientation Using implicits to write expressive code The type system Using implicits and types together Using the right collection Actors Integrating Scala with Java Patterns in functional programming Save time and trouble building object-oriented, functional, and concurrent applications with Scala 3. The latest edition of this comprehensive cookbook is packed with more than 250 ready-to-use recipes and 700 code examples to help you solve the most common problems when working with Scala and its popular libraries. Whether you're working on web, big data, or distributed applications, this cookbook provides recipes based on real-world scenarios for experienced Scala developers and for programmers just learning to use this JVM language. Author Alvin Alexander includes practical solutions from his experience using Scala for highly scalable applications that support concurrency and distribution. Recipes cover: Strings, numbers, and control structures Classes, methods, objects, traits, packaging, and imports Functional programming in a variety of situations Building Scala applications with sbt Collections covering Scala's wealth of classes and methods Actors and concurrency List, array, map, set, and more Files, processes, and command-line tasks Web services and interacting with Java Databases and persistence, data types and idioms. If you've had trouble trying to learn Functional Programming (FP), you're not alone. In this book, Alvin Alexander -- author of the Scala Cookbook and former teacher of Java and Object-Oriented Programming (OOP) classes -- writes about his own problems in trying to understand FP, and how he finally conquered it. What he originally learned is that experienced FP developers are driven by two goals: to use only immutable values, and write only pure functions. What he later learned is that they have these goals as the result of another larger goal: they want all of their code to look and work just like algebra. While that sounds simple, it turns out that these goals require them to use many advanced Scala features -- which they often use all at the same time. As a result, their code can look completely foreign to novice FP developers. As Mr. Alexander writes, "When you first see their code it's easy to ask, 'Why would anyone write code like this?'" Mr. Alexander answers that "Why?" question by explaining the benefits of writing pure functional code. Once you understand those benefits -- your motivation for learning FP -- he shares five rules for programming in the book: All fields must be immutable ('val' fields). All functions must be pure functions. Null values are not allowed. Whenever you use an 'if' you must also use an 'else'. You won't create OOP classes that encapsulate data and behavior; instead you'll design data structures using Scala 'case' classes, and write pure functions that operate on those data structures. In the book you'll see how those five, simple rules naturally lead you to write pure, functional code that reads like algebra. He also shares one more Golden Rule for learning: Always ask "Why"? Lessons in the book include: How and why to write only pure functions Why pure function signatures are much more important than OOP method signatures Why recursion is a natural tool for functional programming, and how to write recursive algorithms Because the Scala 'for' expression is so important to FP, dozens of pages explain the details of how it works In the end you'll see that monads aren't that difficult because they're a natural extension of the Five Rules The book finishes with lessons on FP data modeling, and two main approaches for organizing your pure functions As Mr. Alexander writes, "In this book I take the time to explain all of the concepts that are used to write FP code in Scala. As I learned from my own experience, once you understand the Five Rules and the small concepts, you can understand Scala/FP." Please note that because of the limits on how large a printed book can be, the paperback version does not include all of the chapters that are in the Kindle eBook. The following lessons are not in the paperback version: Grandma's Cookies (a story about pure functions) The ScalaCheck lessons The Type Classes lessons The appendices Because those lessons didn' fit in the print version, they have been made freely available online. (Alvin Alexander (alvinalexander.com) wrote the popular Scala Cookbook for O'Reilly, and also self-published

two other books, How I Sold My Business: A Personal Diary, and A Survival Guide for New Consultants.) Describes how to use Scala to create applications for the Java VM. 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. Master the fundamentals of Scala and understand its emphasis on functional programming that sets it apart from Java. This book will help you translate what you already know in Java to Scala to start your functional programming journey. Learn Scala is split into four parts: a tour of Scala, a comparison between Java and Scala, Scala-specific features and functional programming idioms, and finally a discussion about adopting Scala in existing Java teams and legacy projects. After reading and using this tutorial, you'll come away with the skills in Scala to kick-start your productivity with this growing popular language. What You'll Learn Tour Scala and learn the basic syntax, constructs, and how to use the REPL Translate Java syntax that you already know into Scala Learn what Scala offers over and above Java Become familiar with functional programming concepts and idioms Gain tips and advice useful when transitioning existing Java projects to Scala Who This Book Is For Java developers looking to transition to Scala. No prior experience necessary in Scala. 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 CS1/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 This book, presented in three volumes, examines environmental disciplines in relation to major players in contemporary science: Big Data, artificial intelligence and cloud computing. Today, there is a real sense of urgency regarding the evolution of computer technology, the ever-increasing volume of data, threats to our climate and the sustainable development of our planet. As such, we need to reduce technology just as much as we need to bridge the global socio-economic gap between the North and South; between universal free access to data (open data) and free software (open source). In this book, we pay particular attention to certain environmental subjects, in order to enrich our understanding of cloud computing. These subjects are: erosion; urban air pollution and atmospheric pollution in Southeast Asia; melting permafrost (causing the accelerated release of soil organic carbon in the atmosphere); alert systems of environmental hazards (such as forest fires, prospective modeling of socio-spatial practices and land use); and web fountains of geographical data. Finally, this book asks the question: in order to find a pattern in the data, how do we move from a traditional computing model-based world to pure mathematical research? After thorough examination of this topic, we conclude that this goal is both transdisciplinary and achievable. This book is a must-have tutorial for software developers aiming to write concurrent programs in Scala, or broaden their existing knowledge of concurrency. This book is intended for Scala programmers that have no prior knowledge about concurrent programming, as well as those seeking to broaden their existing knowledge about concurrency. Basic knowledge of the Scala programming language will be helpful. Readers with a solid knowledge in another programming language, such as Java, should find this book easily accessible. Scala Programming Learn Scala Programming FAST and EASY!This book is an exploration of the Scala programming language. It begins by explaining the language to the reader, including its origin, uses and benefits. The book then guides the reader through setting up an environment ready for programming in different operating systems including Windows, Linux, and Mac OS X. The syntax which is used in all the Scala programs is explored. You will understand the various parts which make up a Scala program. Variable declaration in Scala is

also explored. On reading this book, you will understand how to use the two keywords, that is, "var" and "val" to declare your variables and make them either mutable or immutable. You will also understand the difference between the two types of variables. The different types of operators which are supported in Scala are discussed in detail. Sample programs are used to demonstrate how these operators can be used practically. Decision making statements are also explored in this book, thus, after reading this book, you will be in a position to create programs which are capable of making logical decisions. Loops are also explored. You will learn how to create certain parts of code to be executed a number of times. You will learn to create functions with or without parameters. Closures, which are a special type of function, are also explored. You will also learn how to use and perform various operations on strings. The following topics are explored in this book: Setting up the Environment A Scala Basic Syntax Variables in Scala Operators in Scala Decision making in Scala Programming Loops in Scala Functions in Scala Closures in Scala Strings in Scala Download your copy of " Scala Programming " by scrolling up and clicking "Buy Now With 1-Click" button. 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 A multi-user game, web site, cloud application, or networked database can have thousands of users all interacting at the same time. You need a powerful, industrial-strength tool to handle the really hard problems inherent in parallel, concurrent environments. You need Erlang. In this second edition of the bestselling Programming Erlang, you'll learn how to write parallel programs that scale effortlessly on multicore systems. Using Erlang, you'll be surprised at how easy it becomes to deal with parallel problems, and how much faster and more efficiently your programs run. That's because Erlang uses sets of parallel processes-not a single sequential process, as found in most programming languages. Joe Armstrong, creator of Erlang, introduces this powerful language in small steps, giving you a complete overview of Erlang and how to use it in common scenarios. You'll start with sequential programming, move to parallel programming and handling errors in parallel programs, and

learn to work confidently with distributed programming and the standard Erlang/Open Telecom Platform (OTP) frameworks. You need no previous knowledge of functional or parallel programming. The chapters are packed with hands-on, real-world tutorial examples and insider tips and advice, and finish with exercises for both beginning and advanced users. The second edition has been extensively rewritten. New to this edition are seven chapters covering the latest Erlang features: maps, the type system and the Dialyzer, WebSockets, programming idioms, and a new stand-alone execution environment. You'll write programs that dynamically detect and correct errors, and that can be upgraded without stopping the system. There's also coverage of rebar (the de facto Erlang build system), and information on how to share and use Erlang projects on github, illustrated with examples from cowboy and bitcask. Erlang will change your view of the world, and of how you program. What You Need The Erlang/OTP system. Download it from erlang.org. Grok and perform effective functional programming in Scala About This Book Understand functional programming patterns by comparing them with the traditional object-oriented design patterns Write robust, safer, and better code using the declarative programming paradigm An illustrative guide for programmers to create functional programming patterns with Scala Who This Book Is For If you have done Java programming before and have a basic knowledge of Scala and its syntax, then this book is an ideal choice to help you to understand the context, the traditional design pattern applicable, and the Scala way. Having previous knowledge of design patterns will help, though it is not strictly necessary. What You Will Learn Get to know about functional programming and the value Scala's FP idioms bring to the table Solve day-to-day programming problems using functional programming idioms Cut down the boiler-plate and express patterns simply and elegantly using Scala's concise syntax Tame system complexity by reducing the moving parts Write easier to reason about concurrent code using the actor paradigm and the Akka library Apply recursive thinking and understand how to create solutions without mutation Reuse existing code to compose new behavior Combine the object-oriented and functional programming approaches for effective programming using Scala In Detail Scala is used to construct elegant class hierarchies for maximum code reuse and extensibility and to implement their behavior using higher-order functions. Its functional programming (FP) features are a boon to help you design “easy to reason about” systems to control the growing software complexities. Knowing how and where to apply the many Scala techniques is challenging. Looking at Scala best practices in the context of what you already know helps you grasp these concepts quickly, and helps you see where and why to use them. This book begins with the rationale behind patterns to help you understand where and why each pattern is applied. You will discover what tail recursion brings to your table and will get an understanding of how to create solutions without mutations. We then explain the concept of memorization and infinite sequences for on-demand computation. Further, the book takes you through Scala's stackable traits and dependency injection, a popular technique to produce loosely-coupled software systems. You will also explore how to currying favors to your code and how to simplify it by de-construction via pattern matching. We also show you how to do pipeline transformations using higher order functions such as the pipes and filters pattern. Then we guide you through the increasing importance of concurrent programming and the pitfalls of traditional code concurrency. Lastly, the book takes a paradigm shift to show you the different techniques that functional programming brings to your plate. This book is an invaluable source to help you understand and perform functional programming and solve common programming problems using Scala's programming patterns. Style and approach This is a hands-on guide to Scala's game-changing features for programming. It is filled with many code examples and figures that illustrate various Scala idioms and best practices. 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 craft, while its type safety and performance ensures that it's stable and fast enough for any application. Learn about the core data types, literals, values, and variables Discover how to think and write in expressions, the foundation for Scala's syntax Write higher-order functions that accept or return other functions Become familiar with immutable data structures and easily transform them with type-safe and declarative operations Create custom infix operators to simplify existing operations or even to start your own domain-specific language Build classes that compose one or more traits for full reusability, or create new functionality by mixing them in at instantiation 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 Nilanjan 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 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 DevDaily.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 Beginning Scala, Second Edition takes a down-to-earth approach to teaching Scala that leads you through simple examples that can be combined to build

complex, scalable systems and applications. This book introduces you to the Scala programming language, its object-oriented and functional programming characteristics, and then guides you through Scala constructs and libraries that allow you to assemble small components into high-performance, scalable systems. You will learn why Scala is judiciously used for critical business applications by leading companies such as Twitter, LinkedIn, Foursquare, the Guardian, Morgan Stanley, Credit Suisse, UBS, and HSBC. Scala is a multi-paradigm programming language that combines both functional and object-oriented features. Moreover, this highly scalable language lends itself well to building cloud-based/deliverable Software as a Service (SaaS) online applications. A comprehensive step-by-step guide Category Theory is one of the most abstract branches of mathematics. It is usually taught to graduate students after they have mastered several other branches of mathematics, like algebra, topology, and group theory. It might, therefore, come as a shock that the basic concepts of category theory can be explained in relatively simple terms to anybody with some experience in programming.That's because, just like programming, category theory is about structure. Mathematicians discover structure in mathematical theories, programmers discover structure in computer programs. Well-structured programs are easier to understand and maintain and are less likely to contain bugs. Category theory provides the language to talk about structure and learning it will make you a better programmer. Leverage the power of Scala with different tools to build scalable, robust data science applications About This Book A complete guide for scalable data science solutions, from data ingestion to data visualization Deploy horizontally scalable data processing pipelines and take advantage of web frameworks to build engaging visualizations Build functional, type-safe routines to interact with relational and NoSQL databases with the help of tutorials and examples provided Who This Book Is For If you are a Scala developer or data scientist, or if you want to enter the field of data science, then this book will give you all the tools you need to implement data science solutions. What You Will Learn Transform and filter tabular data to extract features for machine learning Implement your own algorithms or take advantage of MLLib's extensive suite of models to build distributed machine learning pipelines Read, transform, and write data to both SQL and NoSQL databases in a functional manner Write robust routines to query web APIs Read data from web APIs such as the GitHub or Twitter API Use Scala to interact with MongoDB, which offers high performance and helps to store large data sets with uncertain query requirements Create Scala web applications that couple with JavaScript libraries such as D3 to create compelling interactive visualizations Deploy scalable parallel applications using Apache Spark, loading data from HDFS or Hive In Detail Scala is a multi-paradigm programming language (it supports both object-oriented and functional programming) and scripting language used to build applications for the JVM. Languages such as R, Python, Java, and so on are mostly used for data science. It is particularly good at analyzing large sets of data without any significant impact on performance and thus Scala is being adopted by many developers and data scientists. Data scientists might be aware that building applications that are truly scalable is hard. Scala, with its powerful functional libraries for interacting with databases and building scalable frameworks will give you the tools to construct robust data pipelines. This book will introduce you to the libraries for ingesting, storing, manipulating, processing, and visualizing data in Scala. Packed with real-world examples and interesting data sets, this book will teach you to ingest data from flat files and web APIs and store it in a SQL or NoSQL database. It will show you how to design scalable architectures to process and modelling your data, starting from simple concurrency constructs such as parallel collections and futures, through to actor systems and Apache Spark. As well as Scala's emphasis on functional structures and immutability, you will learn how to use the right parallel construct for the job at hand, minimizing development time without compromising scalability. Finally, you will learn how to build beautiful interactive visualizations

using web frameworks. This book gives tutorials on some of the most common Scala libraries for data science, allowing you to quickly get up to speed with building data science and data engineering solutions. Style and approach A tutorial with complete examples, this book will give you the tools to start building useful data engineering and data science solutions straightaway This book is intended for the intermediate Scala programmer who is interested in functional programming and works mainly on the web service backend side. Ideally she has experience with libraries like Akka HTTP and Slick which are in heavy use in that area. However maybe you have wondered if we can't do better even though aforementioned projects are battle tested and proven. The answer to this can be found in this book which is intended to be read from cover to cover in the given order. Within the book the following libraries will be used: Cats, Cats Effect, http4s, Doobie, Refined, fs2, tapir, Monocle and probably others. ;-) This edition includes a chapter about migrating the project to Scala 3. Which includes all the nasty issues that we tend to run into if we touch code after a longer time. Code and book source can be found in the author's github account. This international bestseller has been revised with new exercises, annotations, and full coverage of Scala 3. In Functional Programming in Scala, Second Edition you will learn how to: Recognize and write purely functional code Work with errors without using exceptions Work with state and concurrency Interact with functional structures that define common behaviors Write code that performs I/O without sacrificing functional programming Functional Programming in Scala has helped over 30,000 developers discover the power of functional programming. You'll soon see why reviewers have called it "mindblowing"! The book smooths the complexity curve of functional programming, making it simple to understand the basics and intuitive to progress to more advanced topics. Concrete examples and exercises show you FP in the real world and reveal how it can improve your everyday coding practices. This second edition comes packed with the latest standards of FP, as well as full code updates to Scala 3, and its new language features. Foreword by Daniel Spiewak. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Functional code is easy to test, reuse, and parallelize, and it's practically immune to whole categories of state-related bugs. With its strong functional features, familiar syntax, and seamless interoperability with Java, there's no better place to start learning functional programming than the flexible Scala language. About the Book In Functional Programming with Scala, Second Edition you'll learn functional programming from first principles. Hands-on exercises and examples make it easy to start thinking and coding functionally. This revised edition contains extensive exercise annotations to help you explore FP in depth, along with steps to build your own functional libraries in Scala. Once the functional lightbulb goes on, you'll never look at coding the same way again. What's Inside Recognize and write purely functional code Work with errors without using exceptions Work with state and concurrency Interact with functional structures that define common behaviors About the Reader For Java or Scala programmers. No knowledge of functional programming required. About the Author Michael Pilquist is the lead maintainer of FS2, a functional streaming library, and contributes to the Typelevel ecosystem. Paul Chiusano and Rúnar Bjarnason are recognized experts in functional programming and authors of the first edition of Functional Programming with Scala. Table of Contents: PART 1 - INTRODUCTION TO FUNCTIONAL PROGRAMMING 1 What is functional programming? 2 Getting started with functional programming in Scala 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 Purely functional parallelism 8 Property-based testing 9 Parser combinators PART 3 - COMMON STRUCTURES IN FUNCTIONAL DESIGN 10 Monoids 11 Monads 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 A book for intermediate to

advanced Scala developers. Aimed at those who understand functional effects, referential transparency and the benefits of functional programming to some extent but who are missing some pieces to put all these concepts together to build a large application in a time-constrained manner.Throughout the chapters we will design, architect and develop a complete stateful application serving an API via HTTP, accessing a database and dealing with cached data, using the best practices and best functional libraries available in the Cats ecosystem such as Cats Effect, Fs2, Http4s, Skunk, Refined and others.You will also learn about common design patterns such as managing state, error handling and anti-patterns, all accompanied by clear examples. Furthermore, in the Bonus Chapter, we will dive into some advanced concepts such as MTL and Optics, and will explore Fs2 streams with a few interesting examples.A digital version is also available on LeanPub. Our industry is moving toward functional programming, but your object-oriented experience is still valuable. Scala combines the power of OO and functional programming, and Pragmatic Scala shows you how to work effectively with both. Updated to Scala 2.11, with in-depth coverage of new features such as Akka actors, parallel collections, and tail call optimization, this book will show you how to create stellar applications. The first edition of this book was released as Programming Scala. Our industry is moving toward functional programming, but your object-oriented experience is still valuable. Scala combines the power of OO and functional programming, and Pragmatic Scala shows you how to work effectively with both. Updated to Scala 2.11, with in-depth coverage of new features such as Akka actors, parallel collections, and tail call optimization, this book will show you how to create stellar applications. This thorough introduction to Scala will get you coding in this powerful language right away. You'll start from the familiar ground of Java and, with easy-to-follow examples, you'll learn how to create highly concise and expressive applications with Scala. You'll find out when and how to mix both imperative and functional style, and how to use parallel collections and Akka actors to create high-performance concurrent applications that effectively use multicore processors. Scala has evolved since the first edition of this book, and Pragmatic Scala is a significant update. We've revised each chapter, and added three new chapters and six new sections to explore the new features in Scala. You'll learn how to: Safely manage concurrency with parallel collections and Akka actors Create expressive readable code with value classes and improved implicit conversions Create strings from data with no sweat using string interpolation Create domain-specific languages Optimize your recursions with tail call optimization Whether you're interested in creating concise, robust single-threaded applications or highly expressive, thread-safe concurrent programs, this book has you covered. What You Need: The Scala compiler (2.x) and the JDK are required to make use of the concepts and the examples in this book. In his latest book, Alvin Alexander, author of the Scala Cookbook and Functional Programming, Simplified, brings you a quick, simple introduction to the Scala programming language. In under 250 fast-paced pages, Mr. Alexander demonstrates that Scala is a beautiful, modern, expressive programming language. The book is broken down into 55 short lessons to help you learn one topic at a time, and also help you easily find what you need. Lessons include: - An introduction to Scala's two types of variables, `val` and `var`- Scala control structures, including powerful `for` expressions and `match` expressions- An overview of Scala collections classes and methods- Coverage of object-oriented programming (OOP), including features of Scala classes and methods- An introduction to functional programming (FP), including pure functions, using functions as variables, case classes, match expressions, functional error handling, and more- How to program in a modular style with traits- How to build Scala projects with SBT- How to write TDD and BDD unit tests with ScalaTest- Programming concurrency with Akka actors and Scala futures To help get you started with Scala as fast as possible, the book shares many source code examples, including several open source Github projects that you can run immediately. All examples in the book have been written with

the latest Scala release (version 2.12), and represent 2018's "best practices" for Scala programming. Scala is a highly expressive, concise and scalable language. It is also the most prominent method of the new and exciting methodology known as object-functional programming. In this book, the authors show how Scala grows to the needs of the programmer, whether professional or hobbyist. They teach Scala with a step-by-step approach and explain how to exploit the full power of the industry-proven JVM technology. Readers can then dive into specially chosen design challenges and implementation problems, inspired by the trials of real-world software engineering. It also helps readers to embrace the power of static typing and automatic type inference. In addition, the book shows how to use the dual-object and functional-oriented natures combined at Scala's core, and so write code that is less 'boilerplate', giving a genuine increase in productivity. Learn the latest version of Scala through simple, practical examples. This book introduces you to the Scala programming language, its object-oriented and functional programming characteristics, and then guides you through Scala constructs and libraries that allow you to assemble small components into high-performance, scalable systems. Beginning Scala 3 explores new Scala 3 language features such as Top-level declarations, Creator applications, Extension methods to add extra functionality to existing types, and Enums. You will also learn new ways to manipulate types via Union types, intersection, literal, and opaque type aliases. Additionally, you'll see how Implicits are replaced by given and using clauses. After reading this book, you will understand why Scala is judiciously used for critical business applications by leading companies such as Twitter, LinkedIn, Foursquare, the Guardian, Morgan Stanley, Credit Suisse, UBS, and HSBC – and you will be able to use it in your own projects. What You Will Learn Get started with Scala 3 or Scala language programming in general Understand how to utilitze OOP in Scala Perform functional programming in Scala Master the use of Scala collections, traits and implicits Leverage Java and Scala interopability Employ Scala for DSL programming Use patterns and best practices in Scala Who This Book Is For Those with a background in Java and/or Kotlin who are new to Scala. This book is also for those with some prior Scala experience who want to learn Scala version 3. 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. Youâ??ll explore the basic operations and common functions of Sparkâ??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, Sparkâ??s scalable machine-learning library. Get a gentle overview of big data and Spark Learn about DataFrames, SQL, and Datasetsâ??Sparkâ??s core APIsâ??through worked examples Dive into Sparkâ??s low-level APIs, RDDs, and execution of SQL and DataFrames Understand how Spark runs on a cluster Debug, monitor, and tune Spark clusters and applications Learn the power of Structured Streaming, Sparkâ??s stream-processing engine Learn how you can apply MLlib to a variety of problems, including classification or recommendation Write efficient, clean, and reusable code with Scala About This Book Unleash the power of Scala and apply it in the real world Increase your efficiency by leveraging the power of Creational, Structural, Behavioural, and Functional design patterns Build object oriented and functional applications quickly and effectively Who This Book Is For If you want to increase your understanding of Scala and apply it to real-life application development, then this book is for you. We've also designed the book to be used as a quick reference guide while creating applications. Previous Scala programming knowledge is expected. What You Will Learn Immerse yourself in industry-standard design patterns—structural, creational, and behavioral—to create

extraordinary applications Feel the power of traits and their application in Scala Implement abstract and self types and build clean design patterns Build complex entity relationships using structural design patterns Create applications faster by applying functional design patterns In Detail Scala has become increasingly popular in many different IT sectors. The language is exceptionally feature-rich which helps developers write less code and get faster results. Design patterns make developer's lives easier by helping them write great software that is easy to maintain, runs efficiently and is valuable to the company or people concerned. You will learn about the various features of Scala and be able to apply well-known, industry-proven design patterns in your work. The book starts off by focusing on some of the most interesting features of Scala while using practical real-world examples. We will also cover the popular "Gang of Four" design patterns and show you how to incorporate functional patterns effectively. By the end of this book, you will have enough knowledge and understanding to quickly assess problems and come up with elegant solutions. Style and approach The design patterns in the book will be explained using real-world, step-by-step examples. For each design pattern, there will be hints about when to use it and when to look for something more suitable. This book can also be used as a practical guide, showing you how to leverage design patterns effectively. Supervised and unsupervised machine learning made easy in Scala with this quick-start guide. Key Features Construct and deploy machine learning systems that learn from your data and give accurate predictions Unleash the power of Spark ML along with popular machine learning algorithms to solve complex tasks in Scala. Solve hands-on problems by combining popular neural network architectures such as LSTM and CNN using Scala with DeepLearning4j library Book Description Scala is a highly scalable integration of object-oriented nature and functional programming concepts that make it easy to build scalable and complex big data applications. This book is a handy guide for machine learning developers and data scientists who want to develop and train effective machine learning models in Scala. The book starts with an introduction to machine learning, while covering deep learning and machine learning basics. It then explains how to use Scala-based ML libraries to solve classification and regression problems using linear regression, generalized linear regression, logistic regression, support vector machine, and Naïve Bayes algorithms. It also covers tree-based ensemble techniques for solving both classification and regression problems. Moving ahead, it covers unsupervised learning techniques, such as dimensionality reduction, clustering, and recommender systems. Finally, it provides a brief overview of deep learning using a real-life example in Scala. What you will learn Get acquainted with JVM-based machine learning libraries for Scala such as Spark ML and Deeplearning4j Learn RDDs, DataFrame, and Spark SQL for analyzing structured and unstructured data Understand supervised and unsupervised learning techniques with best practices and pitfalls Learn classification and regression analysis with linear regression, logistic regression, Naïve Bayes, support vector machine, and tree-based ensemble techniques Learn effective ways of clustering analysis with dimensionality reduction techniques Learn recommender systems with collaborative filtering approach Delve into deep learning and neural network architectures Who this book is for This book is for machine learning developers looking to train machine learning models in Scala without spending too much time and effort. Some fundamental knowledge of Scala programming and some basics of statistics and linear algebra is all you need to get started with this book. 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. Get up and running fast with the basics of programming using Java as an example language. This short book gets you thinking like a programmer in an easy and entertaining way. Modern Programming Made Easy teaches you basic coding principles, including working with lists, sets, arrays, and maps; coding in the object-oriented style; and writing a web application. This book is largely language agnostic, but mainly covers the latest appropriate and relevant release of Java, with some updated references to Groovy, Scala, and JavaScript to give you a broad range of examples to consider. You will get a taste of what modern programming has to offer and set yourself up for further study and growth in your chosen language. What You'll Learn Write code using the functional programming style Build your code using the latest releases of Java, Groovy, and more Test your code Read and write from files Design user interfaces Deploy your app in the cloud Who This Book Is For Anyone who wants to learn how to code. Whether you're a student, a teacher, looking for a career change, or just a hobbyist, this book is made for you. Distributed across servers, difficult to test, and resistant to modification--modern software is complex. Grokking Simplicity is a friendly, practical guide that will change the way you approach software design and development. It introduces a unique approach to functional programming that explains why certain features of software are prone to complexity, and teaches you the functional techniques you can use to simplify these systems so that they''re easier to test and debug. Available in PDF (ePub, kindle, and liveBook formats coming soon). about the technology Even experienced developers struggle with software systems that sprawl across distributed servers and APIs, are filled with redundant code, and are difficult to reliably test and modify. Adopting ways of thinking derived from functional programming can help you design and refactor your codebase in ways that reduce complexity, rather than encouraging it. Grokking Simplicity lays out how to use functional programming in a professional environment to write a codebase that''s easier to test and reuse, has fewer bugs, and is better at handling the asynchronous nature of distributed systems. about the book In Grokking Simplicity, you''ll learn techniques and, more importantly, a mindset that will help you tackle common problems that arise when software gets complex. Veteran functional programmer Eric Normand guides you to a crystal-clear understanding of why certain features of modern software are so prone to complexity and introduces you to the functional techniques you can use to simplify these systems so that they''re easier to read, test, and debug. Through hands-on examples, exercises, and numerous self-assessments, you''ll learn to organize your code for maximum reusability and internalize methods to keep unwanted complexity out of your codebase. Regardless of the language you''re using, the ways of thinking in this book will help recognize problematic code and tame even the most complex software. what''s inside Apply functional programming principles to reduce codebase complexity Work

with data transformation pipelines for code that''s easier to test and reuse Tools for modeling time to simplify asynchrony 60 exercises and 100 questions to test your knowledge about the reader For experienced programmers. Examples are in JavaScript. about the author Eric Normand has been a functional programmer since 2001 and has been teaching functional programming online and in person since 2007. Visit LispCast.com to see more of his credentials. 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 more natural way of representing a process in a reactive system, and it maps directly onto technologies and patterns like Akka, CQRS, 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 Debasish 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 Get up to speed on Scala, the JVM language that offers all the benefits of a modern object model, functional programming, and an advanced type system. Packed with code examples, this comprehensive book shows you how to be productive with the language and ecosystem right away, and explains why Scala is ideal for today's highly scalable, data-centric applications that support concurrency and distribution. This second edition covers recent language features, with new chapters on pattern matching, comprehensions, and advanced functional programming. You’ll also learn about Scala’s command-line tools, third-party tools, libraries, and language-aware plugins for editors and IDEs. This book is ideal for beginning and advanced Scala developers alike. Program faster with Scala’s succinct and flexible syntax Dive into basic and advanced functional programming (FP) techniques Build killer big-data apps, using Scala’s functional combinators Use traits for mixin composition and pattern matching for data extraction Learn the sophisticated type system that combines FP and object-oriented programming concepts Explore Scala-specific concurrency tools, including Akka Understand how to develop rich domain-specific languages Learn good design techniques for building scalable and robust Scala applications