

Scala For Java Developers A Practical Primer

This reader-friendly textbook presents a concise and easy to follow introduction to Scala. Scala is an ideal first programming language, which permits programming in multiple paradigms, and enables developers to be more productive with modern computing infrastructures such as distributed environments. Topics and features: provides review questions and problem-solving exercises (with solutions) in each chapter, inspired by real-world applications; addresses each topic in a self-contained manner, highlighting how Scala can be evolved and grown according to the developer's needs; presents examples from a broad range of different application domains, including consumer electronics, online payment, retail, vehicle manufacturing, and healthcare; encourages an innovation-oriented mind-set, and the development of practical, saleable skills; draws from the author's extensive experience in industrial software development, academic research, and university teaching. This accessible and hands-on guide will embolden professional software engineers to make the switch to Scala. Instructors teaching introductory programming courses will also find this textbook popular among their students.

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

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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 This practically-focused textbook presents a concise tutorial on data structures and algorithms using the object-functional language Scala. The material builds upon the foundation established in the title *Programming with Scala: Language Exploration* by the same author, which can be treated as a companion text for those less familiar with Scala. Topics and features: discusses data structures and algorithms in the form of design patterns; covers key topics on arrays, lists, stacks, queues, hash tables, binary trees, sorting, searching, and graphs; describes examples of complete and running applications for each topic; presents a functional approach to implementations for data structures and algorithms (excepting arrays); provides numerous challenge exercises (with solutions), encouraging the reader to take existing solutions and improve upon them; offers insights from the author's extensive industrial experience; includes a glossary, and an appendix supplying an overview of discrete mathematics. Highlighting the techniques and skills necessary to quickly derive solutions to applied problems, this accessible text will prove invaluable to time-pressured students and

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professional software engineers.

If your application source code is overly verbose, it can be a nightmare to maintain. Write concise and expressive, type-safe code in an environment that lets you build for the JVM, browser, and more. Key Features Expert guidance that shows you to efficiently use both object-oriented and functional programming techniques Understand functional programming libraries, such as Cats and Scalaz, and use them to augment your Scala development Perfectly balances theory and hands-on exercises, assessments, and activities Book Description This book teaches you how to build and contribute to Scala programs, recognizing common patterns and techniques used with the language. You'll learn how to write concise, functional code with Scala. After an introduction to core concepts, syntax, and writing example applications with scalac, you'll learn about the Scala Collections API and how the language handles type safety via static types out-of-the-box. You'll then learn about advanced functional programming patterns, and how you can write your own Domain Specific Languages (DSLs). By the end of the book, you'll be equipped with the skills you need to successfully build smart, efficient applications in Scala that can be compiled to the JVM. What you will learn Understand the key language syntax and core concepts for application development Master the type system to create scalable type-safe applications while cutting down your time spent debugging Understand how you can work with advanced data structures via built-in features such as the Collections library Use classes, objects, and traits to transform a trivial chatbot program into a useful assistant Understand what are pure functions, immutability, and higher-order functions Recognize and implement popular functional programming design patterns Who this book is for This is an ideal book for developers who are looking to learn Scala, and is particularly well

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suited for Java developers looking to migrate across to Scala for application development on the JVM.

Offers a tutorial to the Scala programming language, describing how to use the open source libraries for both Java and Scala, how to build DSLs and other productivity tools, and ways to debug and test using ScalaTest.

"Scala has emerged as a very popular programming language today. It has helped the programmers find the perfect balance between object-oriented programming and functional programming. Scala allows efficient code reuse and extensibility, and its ability to handle data in real-time has made it a popular choice for Big Data projects as well. While it is easy to learn Scala if you are a Java developer, learning it from scratch can be quite a challenge. Spanning over 5 hours, this course attempts to do just that -- help you take your first steps in the world of Scala programming, with no prerequisites. You will start with getting a solid understanding of the functional programming concepts. You will also learn what Scala is, why you should use it, and its core fundamentals. You will then set up the development environment for Scala, followed by working with Scala functions, collections and higher order types. You will learn about the Java Memory Model, what concurrency is, and how Scala can be used to extend Java concurrency. After you have a firm understanding of the basics, you will implement real-world applications using Scala and other popular frameworks like Akka and Spark. By the end of this course, you will have taken your understanding of Scala programming to the next level"--Resource description page.

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? You're Worth It! ? Scala is a relatively new language - more or less a new and better Java.

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It's a great language for Java programmers who want to be more efficient, or people just starting who want to learn a powerful language that won't limit them in the future. This is a great personalized unique Scala Programming Notebook journal also is a perfect gift any time of year including birthday, Christmas, friendship gifts, and a journal for mothers; This notebook is easy to carry around and perfect for the desk. It's time to inspire someone you love today! ? Scala Paper journals never need to be charged and no batteries are required! You only need your thoughts and dreams and something to write with, this Scala Notebook can be used for: Design notes For school Project management To-do lists Personal journal Creative writing Appointment reminders It's also a worthy receptacle for all of your brightest ideas ? ? Scala Notebook features: Pages: 120 - One full year Layout: Lined Journal Dimensions: 6" x 9" (15.24 x 22.86 cm) Interior: White paper Cover what will feel amazing in your hands! Perfect for gift giving! ? Please feel free to browse our wide range of notebooks and find the best suited for your needs. ? Made by "Elizabeth Anderson" - #Programmer, #Developer and #Coder Notebooks.

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

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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.

Write efficient, clean, and powerful Scala code and create high-performing applications that your users will love

About This Book*This is the first book that explores Scala performance techniques in depth, including how to benchmark your performance so you can understand where to make gains*It provides a first-principles examination of what performance means in a Scala context*This book was written by industry experts Vincent Theron and Michael Diamant

Who This Book Is ForIf you are a Scala developer with experience in programming Scala applications and know the basics in Scala, syntax, and frameworks such as Lift or Play, this book is for you. This book will also be useful if you are a Java developer who is interested in switching to Scala, but you don't want to give up the performance of Java code. No knowledge of anything outside Scala is required.

What You Will Learn*Find out about performance and how to evaluate the behavior of an application*Analyze the performance of your application on JVM*Use Scala features to achieve a high performance benchmark for your application*Enhance the performance of your application with the Collection API*Explore asynchronous programming to achieve concurrency and parallelism*Achieve a deeper understanding of high performance using advanced tools

In DetailScala is a statically and strongly typed language that tries to elegantly blend both functional and object-oriented paradigms. It has experienced growing popularity in the past few years as both an appealing and pragmatic choice to write production-ready software in the functional paradigm. Scala lets

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you solve problems with less code than the alternatives. However, this programmatic gain can come at the cost of performance if you aren't careful. Scala High Performance Programming is written to arm you with the knowledge you need to create highly efficient, clean Scala applications. Starting with the basics of understanding what performance is in a Scala context, we'll look at how to benchmark your performance so you can see the results of your optimizations in action. We'll also take a deep dive into type specialization, concurrency, and parallel programming. By the end of the book, you'll be able to code efficient, optimized, solutions in Scala.

Presents an introduction to the new programming language for the Java Platform.

"You're a Java developer who has heard of Scala and maybe now you're being asked to work on Scala code. Concerned? Don't be. Taught by Java-Scala experts Ben Evans and Julian Templeman, this course answers the questions you want answered: What is Scala really useful for? Does it help with concurrency? What is functional programming and how much do I really need to know? How do I set up a Scala development environment, how do I test, and what are the must-know Scala idioms? If you're an intermediate level Java developer with six months of experience under your belt, then this course will quickly transform you from the Scala ignorant to the Scala capable."--Resource description page.

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

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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

Kotlin is the new lovechild of the JVM developers' world. Google promoted Kotlin as a first class language on its Java-based Android platform back in May. Since then, the whole development

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world has been wondering: what is this language? Kotlin has been around for a few years and has been running on production systems, after the languages 1.0 release in February 2016, for a year or so. The language has received a lot of praise and loving words from the developer community. It is a breath of fresh air, a good upgrade to systems running older versions of Java, and still somehow an old dog in a familiar playing field. What is Kotlin? What does it bring that the JVM doesn't already have? Kotlin vs. Java There are a few approaches we can take when introducing Kotlin. We can discuss it through Java, the language Kotlin needs to be based on due to its JVM runtime, or we can do it through Scala, the language Kotlin is heavily influenced by. There is no doubt that Kotlin is better than Java. It is much safer and more concise. It provides you with a bunch of additions to your standard Java language and enhances a few bits and pieces that Java developers have grown to dislike. Additions include things like null safety, extension functions, data classes, objects, first class functions as well as extensive and expressive lambdas. Kotlin also enhances Java's type inference and type system and takes massive leaps forward with collections. Kotlin vs. Scala Perhaps, it's better to compare Kotlin against Scala. This comparison might scare some of you quite a bit because Scala has the reputation of being simultaneously intriguing and frightening. It heavily introduces functional programming paradigm to you while still mixing it into familiar object orientation (hence in an awfully lot of cases creating a mishmash of advanced techniques from both paradigms), brings in some new build tools, and gives your internal flow state a frustrating break every now and then due to long compile times. I come bearing both good news and bad news. Let's start with the bad news: Bad news is that Kotlin is similar to Scala, it follows the same path as Scala does The good news: luckily, it's only slightly similar to Scala in every

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aspect. Kotlin & Functional Programming Paradigm The functional programming paradigm is big part of Kotlin as well. Luckily, it doesn't go into the higher-kinded types, monadic do-continuations, or advanced type theory concepts that make you seek out Bartosz Milewski and his brilliant book on Category Theory. Kotlin introduces easy-to-use collection manipulation functions and functional pipelines for you. You will get your maps, filters, and folds, which in most cases are enough to get to the functional programming path. Java devs that have been lucky enough to jump into Java 8 (hugs and kisses to you Android and/or enterprise developers) will be familiar with these basics and will feel right at home when they jump into Kotlin. They will also find conciseness and safety of better type system, which will spark their first crush towards the language. It is just so pretty and seamless to pipe these functions together and build a clean pipeline. And when you come back to it after a few weeks, you'll still feel like you can somewhat understand it. Smiles all around.

Scala will be a valuable tool to have on hand during your data science journey for everything from data cleaning to cutting-edge machine learning About This Book Build data science and data engineering solutions with ease An in-depth look at each stage of the data analysis process — from reading and collecting data to distributed analytics Explore a broad variety of data processing, machine learning, and genetic algorithms through diagrams, mathematical formulations, and source code Who This Book Is For This learning path is perfect for those who are comfortable with Scala programming and now want to enter the field of data science. Some knowledge of statistics is expected. What You Will Learn Transfer and filter tabular data to extract features for machine learning Read, clean, transform, and write data to both SQL and NoSQL databases Create Scala web applications that couple with JavaScript libraries

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such as D3 to create compelling interactive visualizations Load data from HDFS and HIVE with ease Run streaming and graph analytics in Spark for exploratory analysis Bundle and scale up Spark jobs by deploying them into a variety of cluster managers Build dynamic workflows for scientific computing Leverage open source libraries to extract patterns from time series Master probabilistic models for sequential data In Detail Scala is especially good for analyzing large sets of data as the scale of the task doesn't have any significant impact on performance. Scala's powerful functional libraries can interact with databases and build scalable frameworks — resulting in the creation of robust data pipelines. The first module introduces you to Scala libraries to ingest, store, manipulate, process, and visualize data. Using real world examples, you will learn how to design scalable architecture to process and model data — starting from simple concurrency constructs and progressing to actor systems and Apache Spark. After this, you will also learn how to build interactive visualizations with web frameworks. Once you have become familiar with all the tasks involved in data science, you will explore data analytics with Scala in the second module. You'll see how Scala can be used to make sense of data through easy to follow recipes. You will learn about Bokeh bindings for exploratory data analysis and quintessential machine learning with algorithms with Spark ML library. You'll get a sufficient understanding of Spark streaming, machine learning for streaming data, and Spark graphX. Armed with a firm understanding of data analysis, you will be ready to explore the most cutting-edge aspect of data science — machine learning. The final module teaches you the A to Z of machine learning with Scala. You'll explore Scala for dependency injections and implicits, which are used to write machine learning algorithms. You'll also explore machine learning topics such as clustering, dimensionality reduction, Naive Bayes, Regression models, SVMs,

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neural networks, and more. This learning path combines some of the best that Packt has to offer into one complete, curated package. It includes content from the following Packt products: Scala for Data Science, Pascal Bugnion Scala Data Analysis Cookbook, Arun Manivannan Scala for Machine Learning, Patrick R. Nicolas Style and approach A complete package with all the information necessary to start building useful data engineering and data science solutions straight away. It contains a diverse set of recipes that cover the full spectrum of interesting data analysis tasks and will help you revolutionize your data analysis skills using Scala.

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

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domain-specific language Build classes that compose one or more traits for full reusability, or create new functionality by mixing them in at instantiation Leverage the power of Scala and master the art of building, improving, and validating scalable machine learning and AI applications using Scala's most advanced and finest features About This Book Build functional, type-safe routines to interact with relational and NoSQL databases with the help of the tutorials and examples provided Leverage your expertise in Scala programming to create and customize your own scalable machine learning algorithms Experiment with different techniques; evaluate their benefits and limitations using real-world financial applications Get to know the best practices to incorporate new Big Data machine learning in your data-driven enterprise and gain future scalability and maintainability Who This Book Is For This Learning Path is for engineers and scientists who are familiar with Scala and want to learn how to create, validate, and apply machine learning algorithms. It will also benefit software developers with a background in Scala programming who want to apply machine learning. What You Will Learn 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 Solve big data problems with Scala parallel collections, Akka actors, and Apache Spark clusters Apply key learning strategies to perform technical analysis of financial markets Understand the principles of supervised and unsupervised learning in machine learning

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Work with unstructured data and serialize it using Kryo, Protobuf, Avro, and AvroParquet Construct reliable and robust data pipelines and manage data in a data-driven enterprise Implement scalable model monitoring and alerts with Scala In Detail This Learning Path aims to put the entire world of machine learning with Scala in front of you. Scala for Data Science, the first module in this course, is a tutorial guide that provides tutorials on some of the most common Scala libraries for data science, allowing you to quickly get up to speed building data science and data engineering solutions. The second course, Scala for Machine Learning guides you through the process of building AI applications with diagrams, formal mathematical notation, source code snippets, and useful tips. A review of the Akka framework and Apache Spark clusters concludes the tutorial. The next module, Mastering Scala Machine Learning, is the final step in this course. It will take your knowledge to next level and help you use the knowledge to build advanced applications such as social media mining, intelligent news portals, and more. After a quick refresher on functional programming concepts using REPL, you will see some practical examples of setting up the development environment and tinkering with data. We will then explore working with Spark and MLlib using k-means and decision trees. By the end of this course, you will be a master at Scala machine learning and have enough expertise to be able to build complex machine learning projects using Scala. This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the

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following Packt products: Scala for Data Science, Pascal Bugnion Scala for Machine Learning, Patrick Nicolas Mastering Scala Machine Learning, Alex Kozlov Style and approach A tutorial with complete examples, this course will give you the tools to start building useful data engineering and data science solutions straightaway. This course provides practical examples from the field on how to correctly tackle data analysis problems, particularly for modern Big Data datasets.

Transition smoothly from Java to the most widely used functional JVM-based language – Clojure

About This Book

- Write apps for the multithreaded world with Clojure's flavor of functional programming
- Discover Clojure's features and advantages and use them in your existing projects
- The book is designed so that you'll be able put to use your existing skills and software knowledge to become a more effective Clojure developer

Who This Book Is For

This book is intended for Java developers, who are looking for a way to expand their skills and understand new paradigms of programming. Whether you know a little bit about functional languages, or you are just getting started, this book will get you up and running with how to use your existing skills in Clojure and functional programming.

What You Will Learn

- Understand the tools for the Clojure world and how they relate to Java tools and standards (like Maven)
- Learn about immutable data structures, and what makes them feasible for everyday programming
- Write simple multi-core programs using Clojure's core concepts, like atoms, agents and refs
- Understand that in Clojure, code is data, and how to take advantage of that fact

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by generating and manipulating code with macros• Learn how Clojure interacts with Java, how the class loaders work and how to use Clojure from Java or the other way around• Discover a new, more flexible meaning of polymorphism and understand that OOP is not the only way to get itIn DetailWe have reached a point where machines are not getting much faster, software projects need to be delivered quickly, and high quality in software is more demanding as ever.We need to explore new ways of writing software that helps achieve those goals. Clojure offers a new possibility of writing high quality, multi-core software faster than ever, without having to leave your current platform.Clojure for Java developers aims at unleashing the true potential of the Clojure language to use it in your projects. The book begins with the installation and setup of the Clojure environment before moving on to explore the language in-depth. Get acquainted with its various features such as functional programming, concurrency, etc. with the help of example projects. Additionally, you will also, learn how the tooling works, and how it interacts with the Java environment.By the end of this book, you will have a firm grip on Clojure and its features, and use them effectively to write more robust programs.Style and approachAn easy to follow, step-by-step, guide on how to start writing Clojure programs making use of all of its varied features and advantages. As this is a new language, certain new concepts are supported with theoretical section followed by simple projects to help you gain a better understanding and practice of how Clojure works.

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Software development today is embracing functional programming (FP), whether it's for writing concurrent programs or for managing Big Data. Where does that leave Java developers? This concise book offers a pragmatic, approachable introduction to FP for Java developers or anyone who uses an object-oriented language. Dean Wampler, Java expert and author of *Programming Scala* (O'Reilly), shows you how to apply FP principles such as immutability, avoidance of side-effects, and higher-order functions to your Java code. Each chapter provides exercises to help you practice what you've learned. Once you grasp the benefits of functional programming, you'll discover that it improves all of the code you write. Learn basic FP principles and apply them to object-oriented programming Discover how FP is more concise and modular than OOP Get useful FP lessons for your Java type design—such as avoiding nulls Design data structures and algorithms using functional programming principles Write concurrent programs using the Actor model and software transactional memory Use functional libraries and frameworks for Java—and learn where to go next to deepen your functional programming skills

The Scala programming language is a Java Virtual Machine (JVM) based language which has recently gained popularity and a large amount of funding, so that industry is now adopting it. As such, any Java developer or architect should be familiar with it, so that they can decide if it is a technology they want to adopt or invest in. The trouble for developers with a Java background is that once you look into Scala it doesn't take long

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to realise that the frameworks being used by the Scala community differ from those being used by the Enterprise Java community. This book introduces the language and then investigates how to apply it pragmatically to build a solution to an enterprise problem, namely selling online tickets to events like concerts. In doing so it shows many of the Java Enterprise Edition technologies being used with the Scala language, as well as many of the technologies found in the Typesafe stack, which is a modern platform aimed at making it possible to build scalable applications in Scala (and Java). Written in a tutorial based style, this book builds from foundations upwards, diving into deep complex issues such as threading and performance, and considers many of the facets of the software life cycle such as architecture, design, implementation and testing. The author, Ant Kutschera, has worked as a consultant for over a decade and is a Java EE expert. This book is a result of his journey into a different language which allows multi-paradigm development on the JVM. Join him as he explains how you too can build simple pragmatic solutions to real world problems, using Scala.

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

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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

If you are a skilled Java programmer but are concerned about the Java coding interview process, this real-world guide can help you land your next position Java is a popular and powerful language that is a virtual requirement for businesses making use of IT in their daily operations. For Java programmers, this reality offers job security and a wealth of employment opportunities. But that perfect Java coding job won't be available if you can't ace the interview. If you are a Java programmer concerned about interviewing, *Java Programming Interviews Exposed* is a great resource to prepare for your next opportunity. Author Noel Markham is both an experienced Java developer and interviewer, and has loaded his book with real examples from interviews he has conducted. Review over 150 real-world Java interview questions you are likely to

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encounter Prepare for personality-based interviews as well as highly technical interviews Explore related topics, such as middleware frameworks and server technologies Make use of chapters individually for topic-specific help Use the appendix for tips on Scala and Groovy, two other languages that run on JVMs Veterans of the IT employment space know that interviewing for a Java programming position isn't as simple as sitting down and answering questions. The technical coding portion of the interview can be akin to a difficult puzzle or an interrogation. With *Java Programming Interviews Exposed*, skilled Java coders can prepare themselves for this daunting process and better arm themselves with the knowledge and interviewing skills necessary to succeed.

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

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

- Understand the fundamental principles of Reactive and Functional programming
- Develop applications utilizing features of the Akka framework
- Explore techniques to integrate Scala, Akka, and Play together
- Learn about Reactive Streams with real-time use cases
- Develop Reactive Web Applications with Play, Scala, Akka, and Akka Streams
- Develop and deploy Reactive microservices using the Lagom framework and ConductR

Who this book is for This book is for Scala developers who would like to build fault-tolerant, scalable distributed systems. No knowledge of Reactive programming is required.

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

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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 is a general-purpose computer language that supports both object-oriented and functional styles of programming on a larger scale. Scala is a strong static type of programming language and is influenced by the Java programming language. One of the best similarities of Scala and Java is that you can code Scala just the same way that you code Java. It is also possible to use a lot of Java libraries within Scala along with many of its third-party libraries. Scala has become one of the most in-demand technology among developers and is working its way through today's technology. Learn about Apache Spark from Cloudera Spark Training and excel in your career as a Scala Specialist. Here are some of the topics which would give you a brief explanation of Scala. Why Scala? The biggest strength of Scala is its flexibility in defining abstractions. One of the important components of the Scala language is Scala IDE (Scala Integrated Development Environment) and it is used to connect to the Eclipse Java tool. This way the Eclipse features can explore with the Scala IDE. Scala is designed in such a way that it can inter-operate well with JRE (Java Runtime Environment) and the .NET Framework. The code written in Scala is easier to test

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and reuse; the parallelization becomes simpler, and there are lesser bugs in the whole program. Scala programming follows a top-down approach; each of the programs is broken down into multiple chunks and each can be processed in parallel thus speeding up the process and also improving the efficiency. Helps programmers learn functional programming and apply it to the everyday business of coding. Original.

Get up to speed on Scala--the JVM, JavaScript, and natively compiled language that offers all the benefits of functional programming, a modern object model, 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. You'll learn why Scala is ideal for building today's highly scalable, data-centric applications while maximizing developer productivity. While Java remains popular and Kotlin has become popular, Scala hasn't been sitting still. This third edition covers the new features in Scala 3 with updates throughout the book.

Programming Scala is ideal for beginning to advanced developers who want a complete understanding of Scala's design philosophy and features with a thoroughly practical focus. Program faster with Scala's succinct and flexible syntax Dive into basic and advanced functional programming techniques Build killer big data and distributed apps using Scala's functional combinators and tools

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like Spark and Akka Create concise solutions to challenging design problems with the sophisticated type system, mixin composition with traits, pattern matching, and more

Build reactive, scalable applications and integrate Java code with the power of Scala Overview Learn the syntax interactively to smoothly transition to Scala by reusing your Java code Leverage the full power of modern web programming by building scalable and reactive applications Easy to follow instructions and real world examples to help you integrate java code and tackle big data challenges In Detail Scala for Java Developers is a step-by-step guide full of easy-to-follow code taken from real-world examples explaining the migration and integration of Scala in a Java project. With this book, you will first get comfortable with the Scala syntax and its Java-like ecosystem, and then dive into new ways of building reactive web apps using the Typesafe stack including the actor-based Akka framework, the Play web framework, and the emerging Slick framework for persistence. The book will then teach you how to review useful tools for unit, integration, and functional testing; demonstrate how integrating with external systems applies to the Scala world and what its benefits are. From learning the Scala syntax interactively to writing modern, scalable, reactive applications, this book will help you to take your skills to the next level by solving complex

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problems in a concise and maintainable way. What you will learn from this book

- Apply and control the Scala Ecosystem
- Migrate Java code to Scala
- Discover Play Framework web development
- Test data using Scala's testing frameworks
- Manipulate XML and JSON in Scala
- Learn the Scala syntax interactively
- Integrate Java projects in Scala
- Build reactive web apps using the Typesafe stack
- Use new systems including the Akka framework, the Play web framework, and the emerging Slick framework
- Tackle big data challenges

Approach This step-by-step guide is full of easy-to-follow code taken from real-world examples explaining the migration and integration of Scala in a Java project. Who this book is written for If you are a Java developer or a Java architect working with Java EE-based solutions and want to start using Scala in your daily programming, then this book is ideal for you. This book will get you up and running quickly by adopting a pragmatic approach with real-world code samples. No prior knowledge of Scala is required.

Scala is a concise, statically typed scripting language that runs on the Java Virtual Machine. It is both a functional programming language and object-oriented language but its emphasis on functional programming sets it apart from Java. Learn Scala for Java Developers is for Java developers looking to transition to programming Scala. The book will help you translate the Java you already know

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into Scala and kick-start your productivity. What's Inside 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, functional programming concepts and idioms Tips and advice useful when transitioning existing Java projects to Scala

This book should help you understand the latest in Java 7; concurrent programming; build, testing, and web frameworks; and the best JVM languages so you can advance your career in software development. It's an exciting time to be a programmer, especially in the JVM space. Java 7 is widely used, Java 8 is getting closer to completion, while other JVM languages, like Groovy and Scala, have been increasing in popularity. With the accelerating pace of change in technology, it's important as a programmer to always be learning and looking forward to the latest and greatest technology. This book is meant for the following people: people who want to learn about the latest Java and JVM technology; Java developers who are curious about Groovy, Scala, etc.; and developers who believe that learning about other tools and languages make them better developers.

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

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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.

Extend and enhance your Java applications with domain-specific scripting in Groovy About This Book Build domain-specific mini languages in Groovy that integrate seamlessly with your Java apps with this hands-on guide Increase stakeholder participation in the development process with domain-specific scripting in Groovy Get up to speed with the newest features in Groovy using this second edition and integrate Groovy-based DSLs into your existing Java applications. Who This Book Is For This book is for Java software developers who have an interest in building domain scripting into their Java applications. No knowledge of Groovy is required, although it will be helpful. This book does not teach Groovy, but quickly introduces the basic ideas of Groovy. An experienced Java developer should have no problems with

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these and move quickly on to the more involved aspects of creating DSLs with Groovy. No experience of creating a DSL is required. What You Will Learn Familiarize yourself with Groovy scripting and work with Groovy closures Use the meta-programming features in Groovy to build mini languages Employ Groovy mark-up and builders to simplify application development Familiarize yourself with Groovy mark-up and build your own Groovy builders Build effective DSLs with operator overloading, command chains, builders, and a host of other Groovy language features Integrate Groovy with your Java and JVM based applications In Detail The times when developing on the JVM meant you were a Java programmer have long passed. The JVM is now firmly established as a polyglot development environment with many projects opting for alternative development languages to Java such as Groovy, Scala, Clojure, and JRuby. In this pantheon of development languages, Groovy stands out for its excellent DSL enabling features which allows it to be manipulated to produce mini languages that are tailored to a project's needs. A comprehensive tutorial on designing and developing mini Groovy based Domain Specific Languages, this book will guide you through the development of several mini DSLs that will help you gain all the skills needed to develop your own Groovy based DSLs with confidence and ease. Starting with the bare basics, this book will focus on how Groovy can be used to construct domain specific mini languages, and will go through the more complex meta-programming features of Groovy, including using the Abstract Syntax Tree (AST). Practical examples are used throughout this book to de-mystify these seemingly complex language features and to show how they can be used to create simple and elegant DSLs. Packed with examples, including several fully worked DSLs, this book will serve as a springboard for developing your own DSLs. Style and approach This book is a hands-on guide that will walk

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you through examples for building DSLs with Groovy rather than just talking about "metaprogramming with Groovy". The examples in this book have been designed to help you gain a good working knowledge of the techniques involved and apply these to producing your own Groovy based DSLs.

Transition smoothly from Java to the most widely used functional JVM-based language – Clojure About This Book Write apps for the multithreaded world with Clojure's flavor of functional programming Discover Clojure's features and advantages and use them in your existing projects The book is designed so that you'll be able put to use your existing skills and software knowledge to become a more effective Clojure developer Who This Book Is For This book is intended for Java developers, who are looking for a way to expand their skills and understand new paradigms of programming. Whether you know a little bit about functional languages, or you are just getting started, this book will get you up and running with how to use your existing skills in Clojure and functional programming. What You Will Learn Understand the tools for the Clojure world and how they relate to Java tools and standards (like Maven) Learn about immutable data structures, and what makes them feasible for everyday programming Write simple multi-core programs using Clojure's core concepts, like atoms, agents and refs Understand that in Clojure, code is data, and how to take advantage of that fact by generating and manipulating code with macros Learn how Clojure interacts with Java, how the class loaders work and how to use Clojure from Java or the other way around Discover a new, more flexible meaning of polymorphism and understand that OOP is not the only way to get it In Detail We have reached a point where machines are not getting much faster, software projects need to be delivered quickly, and high quality in software is more demanding as ever. We need

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to explore new ways of writing software that helps achieve those goals. Clojure offers a new possibility of writing high quality, multi-core software faster than ever, without having to leave your current platform. Clojure for Java developers aims at unleashing the true potential of the Clojure language to use it in your projects. The book begins with the installation and setup of the Clojure environment before moving on to explore the language in-depth. Get acquainted with its various features such as functional programming, concurrency, etc. with the help of example projects. Additionally, you will also, learn how the tooling works, and how it interacts with the Java environment. By the end of this book, you will have a firm grip on Clojure and its features, and use them effectively to write more robust programs. Style and approach An easy to follow, step-by-step, guide on how to start writing Clojure programs making use of all of its varied features and advantages. As this is a new language, certain new concepts are supported with theoretical section followed by simple projects to help you gain a better understanding and practice of how Clojure works.

Building scalable, concurrent systems is hard. Think parallelism and we think about threads. Using threads for parallelism is not only difficult but also not scalable. You can only create a certain number of threads on a box. On the other hand you can create a million Akka actors on a box. Also it is difficult to scale out (parallel scaling) using threads. Any multi threaded application likely has the keyword synchronized peppered throughout the code base. It does not follow any pattern which makes the code base and application difficult to manage and it also indicates the difficulty in managing threads. The Akka framework has brought Actors to the Java virtual machine. Actors way of doing parallelism is way simpler than multi-threaded applications. Scala is a modern programming language for the Java Virtual Machine (JVM) that

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combines the best features of object-oriented and functional programming languages. Using Scala one can write concise programs with the power of concurrency. Since Scala runs on the JVM, it can access any Java library and is interoperable with Java frameworks. This book is a practical guide to use Akka along with power of Scala to design business solutions for scalability, fault tolerant concurrent systems. It introduces the topics of concurrency, Scala and Akka which are then blended together to provide a solution on steroids for modern day web scale applications. What you'll learn Scala, SBT: Functional concepts, starting a project in Scala using sbt Akka Toolkit: Actors, Futures, FSM, TestKit Akka Clusters (upcoming and latest addition) Application of technical concepts to business problems A list of business situations which can benefit by leveraging the stack Who this book is for It is meant for Java and Scala developers, architects and product development teams. It is also meant for stakeholders who wish to see what business problems can be solved easily with this stack. This step-by-step guide is full of easy-to-follow code taken from real-world examples explaining the migration and integration of Scala in a Java project. If you are a Java developer or a Java architect, working in Java EE-based solutions and want to start using Scala in your daily programming, this book is ideal for you. This book will get you up and running quickly by adopting a pragmatic approach with real-world code samples. No prior knowledge of Scala is required.

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 this authoritative guide, you'll

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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.

Summary The Well-Grounded Java Developer offers a fresh and practical look at new Java 7 features, new JVM languages, and the array of supporting technologies you need for the next generation of Java-based software. **About the Book** The Well-Grounded Java Developer starts with thorough coverage of Java 7 features like try-with-resources and NIO.2. You'll then explore a cross-section of emerging JVM-based languages, including Groovy, Scala, and Clojure. You will find clear examples that are practical and that help you dig into dozens of valuable development techniques showcasing modern approaches to the dev process, concurrency, performance, and much more. Written for readers familiar with Java. No experience with Java 7 or new JVM languages required. 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** New Java 7 features Tutorials on Groovy, Scala, and Clojure Discovering multicore processing and concurrency Functional programming with new JVM

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languages Modern approaches to testing, build, and CI Table of Contents PART 1 DEVELOPING WITH JAVA 7 Introducing Java 7 New I/O PART 2 VITAL TECHNIQUES Dependency Injection Modern concurrency Class files and bytecode Understanding performance tuning PART 3 POLYGLOT PROGRAMMING ON THE JVM Alternative JVM languages Groovy: Java's dynamic friend Scala: powerful and concise Clojure: safer programming PART 4 CRAFTING THE POLYGLOT PROJECT Test-driven development Build and continuous integration Rapid web development Staying well-grounded Unleash the data processing and analytics capability of Apache Spark with the language of choice: Java About This Book Perform big data processing with Spark—without having to learn Scala! Use the Spark Java API to implement efficient enterprise-grade applications for data processing and analytics Go beyond mainstream data processing by adding querying capability, Machine Learning, and graph processing using Spark Who This Book Is For If you are a Java developer interested in learning to use the popular Apache Spark framework, this book is the resource you need to get started. Apache Spark developers who are looking to build enterprise-grade applications in Java will also find this book very useful. What You Will Learn Process data using different file formats such as XML, JSON, CSV, and plain and delimited text, using the Spark core Library. Perform analytics on data from various data sources such as Kafka, and Flume using Spark Streaming Library Learn SQL schema creation and the analysis of structured data using various SQL functions including Windowing functions in the Spark SQL Library Explore Spark Mlib APIs while implementing Machine Learning techniques to solve real-world problems Get to know Spark GraphX so you understand various graph-based analytics that can be performed with Spark In Detail Apache Spark is the

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buzzword in the big data industry right now, especially with the increasing need for real-time streaming and data processing. While Spark is built on Scala, the Spark Java API exposes all the Spark features available in the Scala version for Java developers. This book will show you how you can implement various functionalities of the Apache Spark framework in Java, without stepping out of your comfort zone. The book starts with an introduction to the Apache Spark 2.x ecosystem, followed by explaining how to install and configure Spark, and refreshes the Java concepts that will be useful to you when consuming Apache Spark's APIs. You will explore RDD and its associated common Action and Transformation Java APIs, set up a production-like clustered environment, and work with Spark SQL. Moving on, you will perform near-real-time processing with Spark streaming, Machine Learning analytics with Spark MLlib, and graph processing with GraphX, all using various Java packages. By the end of the book, you will have a solid foundation in implementing components in the Spark framework in Java to build fast, real-time applications. Style and approach This practical guide teaches readers the fundamentals of the Apache Spark framework and how to implement components using the Java language. It is a unique blend of theory and practical examples, and is written in a way that will gradually build your knowledge of Apache Spark.

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