Functional Programming For The Object Oriented Programmer Ebook Brian Marick

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Head First Object-Oriented Analysis and Design - Brett McLaughlin 2006-11-27 "Head First Object Oriented Analysis and Design is a refreshing look at subject of OOAD. What sets this book apart is its focus on learning. The authors have made the content of OOAD accessible, usable for the practitioner." Ivar Jacobson, Ivar Jacobson Consulting "I just finished reading HF OOA&D and I loved it! The thing I liked most about this book was its focus on why we do OOA&D-to write great software!" Kyle Brown, Distinguished Engineer, IBM "Hidden behind the funny pictures and crazy fonts is a serious, intelligent, extremely well-crafted presentation of OO Analysis and Design. As I read the book, I felt like I was looking over the shoulder of an expert designer who was explaining to me what issues were important at each step, and why." Edward Sciore,Associate Professor, Computer Science Department, Boston College Tired of reading Object Oriented Analysis and Design books that only makes sense after you're an expert? You've heard OOA&D can help you write great software every time-software that makes your boss happy, your customers satisfied and gives you more time to do what makes you happy. But how? Head First Object-Oriented Analysis & Design shows you how to analyze, design, and write serious object-oriented software: software that's easy to reuse, maintain, and extend; software that doesn't hurt your head; software that lets you add new features without breaking the old ones. Inside you will learn how to: Use OO principles like encapsulation and delegation to build applications that are flexible Apply the Open-Closed Principle (OCP) and the Single Responsibility Principle (SRP) to promote reuse of your code Leverage the power of design patterns to solve your problems more efficiently Use UML, use cases, and diagrams to ensure that all stakeholders arecommunicating clearly to help you deliver the right software that meets everyone's needs. By exploiting how your brain works, Head First Object-Oriented Analysis & Design compresses the time it takes to learn and retain complex information. Expect to have fun, expect to learn, expect to be writing great software consistently by the time you're finished reading this!

Grokking Functional Programming - Michal Plachta 2022-12-20

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

The Craft of Software Testing - Brian Marick 1995 This book is about "testing in the medium." It concentrates on thorough testing of moderate sized components of large systems--subsystems--a prerequisite for effective and efficient testing of the integrated system. It aims to present a sensible, flexible, affordable, and coherent testing process. It provides detailed techniques and tricks of the trade, addressed to programmers, system testers, and programmers/testers responsible for bug fixes.

Functional Programming in C# - Enrico Buonanno 2017-08-12 Summary Functional Programming in C# teaches you to apply functional thinking to real-world problems using the C# language. The book, with its many practical examples, is written for proficient C# programmers with no prior FP experience. It will give you an awesome new perspective. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Functional programming changes the way you think about code. For C# developers, FP techniques can greatly improve state management, concurrency, event handling, and long-term code maintenance. And C# offers the flexibility that allows you to benefit fully from the application of functional techniques. This book gives you the awesome power of a new perspective. About the Book Functional Programming in C# teaches you to apply functional thinking to real-world problems using the C# language. You'll start by learning the principles of functional programming and the language features that allow you to program functionally. As you explore the many practical examples, you'll learn the power of function composition, data flow programming, immutable data structures, and monadic composition with LINQ. What's Inside Write readable, team-friendly code Master async and data streams Radically improve error handling Event sourcing and other FP patterns About the Reader Written for proficient C# programmers with no prior FP experience. About the Author Enrico Buonanno studied computer science at Columbia University and has 15 years of experience as a developer, architect, and trainer. Table of Contents PART 1 - CORE CONCEPTS Introducing functional programming Why function purity matters Designing function signatures and types Patterns in functional programming Designing programs with function composition PART 2 - BECOMING FUNCTIONAL Functional error handling Structuring an application with functions Working effectively with multi-argument functions Thinking about data functionally Event sourcing: a functional approach to persistence PART 3 - ADVANCED TECHNIQUES Lazy computations, continuations, and the beauty of monadic composition Stateful programs and stateful computations Working with asynchronous computations Data streams and the Reactive Extensions An introduction to message-passing concurrency

Rust Programming for Beginners - Nathan Metzler 2021-06-24

Harness the Raw Power of the Rust Programming Language and Build High-Performance, Scalable and Fault-Tolerant Applications with the Ultimate Beginners Guide to Rust! Are you interested in learning how to program powerful applications that serve millions of users concurrently without breaking, but have no idea how to begin? Are you currently an object-oriented programmer looking to pivot to functional programming languages? If your answer is yes to any of the questions above, then learning the Rust programming language is one of the best things you can do for your software career! In this comprehensive introduction to the Rust programming language for beginners, Nathan Metzler gives you a complete look under the hood of Rust and shows you how to take advantage of Rust's powerful features from installing Rust on your computer and running your first code to creating scalable applications. Among the pages of Rust Programming for Beginners, you're going to discover: All you need to know about the Rust programming language as a beginner to help you get started on the right foot Step-by-step instructions to install Rust on Windows, macOS, Linux, and FreeBSD with images How to write, compile and execute your first piece of working code with Rust programming language How to build and run projects in rust as well as identify and troubleshoot compile-time and runtime errors A crash course to the basics of Rust language syntax and data types from statements and comments to integers and boolean Programming examples in Rust designed to help you enhance your coding knowledge and sharpen your programming skill with the Rust language ...and tons more! Properly-paced, filler-free, and specifically designed for beginners to Rust, this book is a complete guide to help newbies get up to speed with Rust and is brimming with practical advice to leverage the performance of Rust, as well as code examples to test your knowledge. Ready to master one of the world's most powerful and versatile programming languages? Scroll to the top of the page and click the "Buy Now with 1-Click" button to get started TODAY!

Real-World Functional Programming - Tomas Petricek 2009-11-30

Functional programming languages like F#, Erlang, and Scala are attractingattention as an efficient way to handle the new requirements for programmingmulti-processor and high-availability applications. Microsoft's new F# is a truefunctional language and C# uses functional language features for LINQ andother recent advances. Real-World Functional Programming is a unique tutorial that explores thefunctional programming model through the F# and C# languages. The clearlypresented ideas and examples teach readers how functional programming differsfrom other approaches. It explains how ideas look in F#-a functionallanguage-as well as how they can be successfully used to solve programmingproblems in C#. Readers build on what they know about .NET and learn wherea functional approach makes the most sense and how to apply it effectively inthose cases. The reader should have a good working knowledge of C#. No prior exposure toF# or functional programming is 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.

Practical Object-oriented Design in Ruby - Sandi Metz 2013

The Complete Guide to Writing More Maintainable, Manageable, Pleasing, and Powerful Ruby Applications Ruby's widely admired ease of use has a downside: Too many Ruby and Rails applications have been created without concern for their long-term maintenance or evolution. The Web is awash in Ruby code that is now virtually impossible to change or extend. This text helps you solve that problem by using powerful real-world object-oriented design techniques, which it thoroughly explains using simple and practical Ruby examples. This book focuses squarely on object-oriented Ruby application design. Practical Object-Oriented Design in Ruby will guide you to superior outcomes, whatever your previous Ruby experience. Novice Ruby programmers will find specific rules to live by; intermediate Ruby programmers will find valuable principles they can flexibly interpret and apply; and advanced Ruby programmers will find a common language they can use to lead development and guide their colleagues. This guide will help you Understand how object-oriented programming can help you craft Ruby code that is easier to maintain and upgrade Decide what belongs in a single Ruby class Avoid entangling objects that should be kept separate Define flexible interfaces among objects Reduce programming overhead costs with duck typing Successfully apply inheritance Build objects via composition Design cost-effective tests Solve common problems associated with poorly designed Ruby code

Grokking Simplicity - Eric Normand 2021-05-18

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.

Scala in Depth - Josh Suereth

2012-05-13

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

Programming Scala - Dean Wampler 2014-12-04

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

Continuous Delivery - Jez Humble 2010-07-27

Winner of the 2011 Jolt Excellence Award! Getting software released to users is often a painful, risky, and time-consuming process. This groundbreaking new book sets out the principles and technical practices that enable rapid, incremental delivery of high quality, valuable new functionality to users. Through automation of the build, deployment, and testing process, and improved collaboration between developers, testers, and operations, delivery teams can get changes released in a matter of hours— sometimes even minutes–no matter what the size of a project or the complexity of its code base. Jez Humble and David Farley begin by presenting the foundations of a rapid, reliable, low-risk delivery process. Next, they introduce the “deployment pipeline,” an automated process for managing all changes, from check-in to release. Finally, they discuss the “ecosystem” needed to support continuous delivery, from infrastructure, data and configuration management to governance. The authors introduce state-of-the-art techniques, including automated infrastructure management and data migration, and the use of virtualization. For each, they review key issues, identify best practices, and demonstrate how to mitigate risks. Coverage includes • Automating all facets of building, integrating, testing, and deploying software • Implementing deployment pipelines at team and organizational levels • Improving collaboration between developers, testers, and operations • Developing features incrementally on large and distributed teams • Implementing an effective configuration management strategy • Automating acceptance testing, from analysis to implementation • Testing capacity and other non-functional requirements • Implementing continuous deployment and zero-downtime releases • Managing infrastructure, data, components and dependencies • Navigating risk management, compliance, and auditing Whether you’re a developer, systems administrator, tester, or manager, this book will help your organization move from idea to release faster than ever—so you can deliver value to your business rapidly and reliably.

Java 8 Lambdas - Richard Warburton 2014-03-18

If you’re a developer with core Java SE skills, this hands-on book takes you through the language changes in Java 8 triggered by the addition of lambda expressions. You’ll learn through code examples, exercises, and fluid explanations how these anonymous functions will help you write simple, clean, library-level code that solves business problems. Lambda expressions are a fairly simple change to Java, and the first part of the book shows you how to use them properly. Later chapters show you how lambda functions help you improve performance with parallelism, write simpler concurrent code, and model your domain more accurately, including building better DSLs. Use exercises in each chapter to help you master lambda expressions in Java 8 quickly Explore streams, advanced collections, and other Java 8 library improvements Leverage multicore CPUs and improve performance with data parallelism Use techniques to “lambdify” your existing codebase or library code Learn practical solutions for lambda expression unit testing and debugging Implement SOLID principles of object-oriented programming with lambdas Write concurrent applications that efficiently perform message passing and non-blocking I/O

Scala Cookbook - Alvin Alexander 2013-08

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

Get Programming with Haskell - Will Kurt 2018-03-06 Summary Get Programming with Haskell leads you through short lessons, examples, and exercises designed to make Haskell your own. It has crystal-clear illustrations and guided practice. You will write and test dozens of interesting programs and dive into custom Haskell modules. You will gain a new perspective on programming plus the practical ability to use Haskell in the everyday world. (The 80 IQ points: not guaranteed.) Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Programming languages often differ only around the edges—a few keywords, libraries, or platform choices. Haskell gives you an entirely new point of view. To the software pioneer Alan Kay, a change in perspective can be worth 80 IQ points and Haskellers agree on the dramatic benefits of thinking the Haskell way—thinking functionally, with type safety, mathematical certainty, and more. In this hands-on book, that's exactly what you'll learn to do. What's Inside Thinking in Haskell Functional programming basics Programming in types Real-world applications for Haskell About the Reader Written for readers who know one or more programming languages. Table of Contents Lesson 1 Getting started with Haskell Unit 1 - FOUNDATIONS OF FUNCTIONAL PROGRAMMING Lesson 2 Functions and functional programming Lesson 3 Lambda functions and lexical scope Lesson 4 First-class functions Lesson 5 Closures and partial application Lesson 6 Lists Lesson 7 Rules for recursion and pattern matching Lesson 8 Writing recursive functions Lesson 9 Higher-order functions Lesson 10 Capstone:

Functional object-oriented programming with robots! Unit 2 - INTRODUCING TYPES Lesson 11 Type basics Lesson 12 Creating your own types Lesson 13 Type classes Lesson 14 Using type classes Lesson 15 Capstone: Secret messages! Unit 3 - PROGRAMMING IN TYPES Lesson 16 Creating types with "and" and "or" Lesson 17 Design by composition—Semigroups and Monoids Lesson 18 Parameterized types Lesson 19 The Maybe type: dealing with missing values Lesson 20 Capstone: Time series Unit 4 - IO IN HASKELL Lesson 21 Hello World!—introducing IO types Lesson 22 Interacting with the command line and lazy I/O Lesson 23 Working with text and Unicode Lesson 24 Working with files Lesson 25 Working with binary data Lesson 26 Capstone: Processing binary files and book data Unit 5 - WORKING WITH TYPE IN A CONTEXT Lesson 27 The Functor type class Lesson 28 A peek at the Applicative type class: using functions in a context Lesson 29 Lists as context: a deeper look at the Applicative type class Lesson 30 Introducing the Monad type class Lesson 31 Making Monads easier with donotation Lesson 32 The list monad and list comprehensions Lesson 33 Capstone: SQL-like queries in Haskell Unit 6 - ORGANIZING CODE AND BUILDING PROJECTS Lesson 34 Organizing Haskell code with modules Lesson 35 Building projects with stack Lesson 36 Property testing with QuickCheck Lesson 37 Capstone: Building a prime-number library Unit 7 - PRACTICAL HASKELL Lesson 38 Errors in Haskell and the Either type Lesson 39 Making HTTP requests in Haskell Lesson 40 Working with JSON data by using Aeson Lesson 41 Using databases in Haskell Lesson 42 Efficient, stateful arrays in Haskell Afterword - What's next? Appendix - Sample answers to exercise

Working Effectively with Legacy Code - Michael Feathers 2004-09-22

Get more out of your legacy systems: more performance, functionality, reliability, and manageability Is your code easy to change? Can you get nearly instantaneous feedback when you do change it? Do you understand it? If the answer to any of these questions is no, you have legacy code, and it is draining time and money away from your development efforts. In this book, Michael Feathers offers start-to-finish strategies for working more effectively with large, untested legacy code bases. This book draws on material Michael created for his renowned Object Mentor seminars: techniques Michael has used in mentoring to help hundreds of developers, technical managers, and testers bring their legacy systems under control. The topics covered include Understanding the mechanics of software change: adding features, fixing bugs, improving design, optimizing performance Getting legacy code into a test harness Writing tests that protect you against introducing new problems Techniques that can be used with any language or platform—with examples in Java, C++, C, and C# Accurately identifying where code changes need to be made Coping with legacy systems that aren't object-oriented Handling applications that don't seem to have any structure This book also includes a catalog of twenty-four dependency-breaking techniques that help you work with program elements in isolation and make safer changes.

The Joy of Clojure - Chris Houser 2014-05-28

Summary The Joy of Clojure, Second Edition is a deep look at the Clojure language. Fully updated for Clojure 1.6, this new edition goes beyond just syntax to show you the "why" of Clojure and how to write fluent Clojure code. You'll learn functional and declarative approaches to programming and will master the techniques that make Clojure so elegant and efficient. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the

Technology The Clojure programming language is a dialect of Lisp that runs on the Java Virtual Machine and JavaScript runtimes. It is a functional programming language that offers great performance, expressive power, and stability by design. It gives you built-in concurrency and the predictable precision of immutable and persistent data structures. And it's really, really fast. The instant you see long blocks of Java or Ruby dissolve into a few lines of Clojure, you'll know why the authors of this book call it a "joyful language." It's no wonder that enterprises like Staples are betting their infrastructure on Clojure. About the Book The Joy of Clojure, Second Edition is a deep account of the Clojure language. Fully updated for Clojure 1.6, this new edition goes beyond the syntax to show you how to write fluent Clojure code. You'll learn functional and declarative approaches to programming and will master techniques that make Clojure elegant and efficient. The book shows you how to solve hard problems related to concurrency, interoperability, and performance, and how great it can be to think in the Clojure way. Appropriate for readers with some experience using Clojure or common Lisp. What's Inside Build web apps using ClojureScript Master functional programming techniques Simplify concurrency Covers Clojure 1.6 About the Authors Michael Fogus and Chris Houser are contributors to the Clojure and ClojureScript programming languages and the authors of various Clojure libraries and language features. Table of Contents PART 1 FOUNDATIONS Clojure philosophy Drinking from the Clojure fire hose Dipping your toes in the pool PART 2 DATA TYPES On scalars Collection types PART 3 FUNCTIONAL PROGRAMMING Being lazy and set in your ways Functional programming PART 4 LARGE-SCALE DESIGN Macros Combining data and code Mutation and concurrency Parallelism PART 5 HOST SYMBIOSIS Java.next Why ClojureScript? PART 6 TANGENTIAL CONSIDERATIONS Data-oriented programming Performance Thinking programs Clojure changes the way you think

The Leprechauns of Software Engineering - Laurent Bossavit 2015-06-28

The software profession has a problem, widely recognized but which nobody seems willing to do anything about; a variant of the well known ""telephone game"", where some trivial rumor is repeated from one person to the next until it has become distorted beyond recognition and blown up out of all proportion. Unfortunately, the objects of this telephone game are generally considered cornerstone truths of the discipline, to the point that their acceptance now seems to hinder further progress. This book takes a look at some of those ""ground truths"" the claimed 10x variation in productivity between developers; the ""software crisis""; the cost-of-change curve; the ""cone of uncertainty""; and more. It assesses the real weight of the evidence behind these ideas - and confronts the scary prospect of moving the state of the art forward in a discipline that has had the ground kicked from under it.

Everyday Scripting with Ruby - Brian Marick 2006

Provides information on the basics of the Ruby scripting language and how to create scripts using test-driven design.

The Little LISPer - Daniel P. Friedman 1989

Functional Programming in Python - David Mertz 2018-02-23

In this document, we'll take a tour of Python's features suitable for implementing programs in a functional style. After an introduction to the concepts of functional programming, we'll look at language features such as iterators and generators and relevant library modules such as itertools and functools.

Imperative to Functional Programming Succinctly - Marc Clifton 2017-02-01

Functional programming is fundamentally different from imperative programming. As such, it provides a unique approach to solving problems-one that requires developers to transform how they think about software design and implementation. With Imperative to Functional Programming Succinctly by Marc Clifton, you will learn many of the basic concepts involved with functional programming, such as currying, partial application, function pipelines, recursion, and continuations. By book's end, you will learn how to combine functional and imperative programming to get the most out of your solutions.

Learning Functional Programming - Jack Widman 2022-09-20

Learn how to think and write code like a functional programmer. With this practical guide, software developers familiar with object-oriented programming will dive into the core concepts of functional programming and learn how to use both functional and OOP features together on large or complex software projects. Author Jack Widman uses samples from Java, Python, C#, Scala, and JavaScript to help you gain a new perspective and a set of tools for managing the complexity in your problem domain. You'll be able to write code that's simpler, reusable, easier to test and modify, and more consistently correct. This book also shows you how to use patterns from category theory to help bridge the gap between OOP and functional programming. Learn functional programming fundamentals and explore the way functional programmers approach problems Understand how FP differs from object-oriented and imperative programming Use a set of practical, applicable design patterns that model reality in a functional way Learn how to incorporate FP and OOP features into software projects Apply functional design patterns appropriately and use them to write correct, robust, and easily modifiable code

Object-oriented Programming in Common LISP - Sonya E. Keene 1989

This book is an introduction to the CLOS model of object-oriented programming. CLOS, the Common Lisp Object System, is a newly designed object-oriented programming language that has evolved as a standard from various object-oriented extensions of the basic Lisp language. The language definition of CLOS comprises a set of tools for developing object-oriented programs in Common Lisp. The book serves two purposes: it is a practical guide to CLOS programming and stands as a tutorial teaching object-oriented techniques for software design and development.

Becoming Functional - Joshua Backfield 2014-07-02

If you have an imperative (and probably object-oriented) programming background, this hands-on book will guide you through the alien world of functional programming. Author Joshua Backfield begins slowly by showing you how to apply the most useful implementation concepts before taking you further into functional-style concepts and practices. In each chapter, you'll learn a functional concept and then use it to refactor the fictional XXY company's imperative-style legacy code, writing and testing the functional code yourself. As you progress through the book, you'll migrate from Java 7 to Groovy and finally to Scala as the need for better functional language support gradually increases. Learn why today's finely tuned applications work better with functional code Transform imperative-style patterns into functional code, following basic steps Get up to speed with Groovy and Scala through examples Understand how first-class functions are passed and returned from other functions Convert existing methods into pure functions, and loops into recursive methods Change mutable variables into immutable variables Get hands-on experience with statements and nonstrict evaluations Use functional programming alongside object-oriented design

Eloquent JavaScript, 3rd Edition - Marijn Haverbeke 2018-12-04

Completely revised and updated, this best-selling introduction to programming in JavaScript focuses on writing real applications. JavaScript lies at the heart of almost every modern web application, from social apps like Twitter to browser-based game frameworks like Phaser and Babylon. Though simple for beginners to pick up and play with, JavaScript is a flexible, complex language that you can use to build full-scale applications. This much anticipated and thoroughly revised third edition of Eloquent JavaScript dives deep into the JavaScript language to show you how to write beautiful, effective code. It has been updated to reflect the current state of Java¬Script and web browsers and includes brand-new material on features like class notation, arrow functions, iterators, async functions, template strings, and block scope. A host of new exercises have also been added to test your skills and keep you on track. As with previous editions, Haverbeke continues to teach through extensive examples and immerses you in code from the start, while exercises and full-chapter projects give you hands-on experience with writing your own programs. You start by learning the basic structure of the JavaScript language as well as control structures, functions, and data structures to help you write basic programs. Then you'll learn about error handling and bug fixing, modularity, and asynchronous programming before moving on to web browsers and how JavaScript is used to program them. As you build projects such as an artificial life simulation, a simple programming language, and a paint program, you'll learn how to: - Understand the essential elements of programming, including syntax, control, and data - Organize and clarify your code with object-oriented and functional programming techniques - Script the browser and make basic web applications - Use the DOM effectively to interact with browsers - Harness Node.js to build servers and utilities Isn't it time you became fluent in the language of the Web? * All source code is available online in an inter¬active sandbox, where you can edit the code, run it, and see its output instantly.

Learning Scala - Jason Swartz 2014-12-11

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

Functional Programming in Java - Venkat Subramaniam

2014-02-19

Intermediate level, for programmers fairly familiar with Java, but new to the functional style of programming and lambda expressions. Get ready to program in a whole new way. Functional Programming in Java will help you quickly get on top of the new, essential Java 8 language features and the functional style that will change and improve your code. This short, targeted book will help you make the paradigm shift from the old imperative way to a less error-prone, more elegant, and concise coding style that's also a breeze to parallelize. You'll explore the syntax and semantics of lambda expressions, method and constructor references, and functional interfaces. You'll design and write applications better using the new standards in Java 8 and the JDK. Lambda expressions are lightweight, highly concise anonymous methods backed by functional interfaces in Java 8. You can use them to leap forward into a whole new world of programming in Java. With functional programming capabilities, which have been around for decades in other languages, you can now write elegant, concise, less error-prone code using standard Java. This book will guide you though the paradigm change, offer the essential details about the new features, and show you how to transition from your old way of coding to an improved style. In this book you'll see popular design patterns, such as decorator, builder, and strategy, come to life to solve common design problems, but with little ceremony and effort. With these new capabilities in hand, Functional Programming in Java will help you pick up techniques to implement designs that were beyond easy reach in earlier versions of Java. You'll see how you can reap the benefits of tail call optimization, memoization, and effortless parallelization techniques. Java 8 will change the way you write applications. If you're eager to take advantage of the new features in the language, this is the book for you. What you need: Java 8 with support for lambda expressions and the JDK is required to make use of the concepts and the examples in this book.

Python Object-Oriented Programming - Steven F. Lott 2021-07-02

Being familiar with object-oriented design is an essential part of programming in Python. This new edition includes all the topics that made Python Object-Oriented Programming an instant Packt classic. Moreover, it’s packed with updated content to reflect more recent changes in the core Python libraries and cover modern third-party packages.

Functional Programming in C++ - Ivan Cukic 2018-11-09

Summary Functional Programming in C++ teaches developers the practical side of functional programming and the tools that C++ provides to develop software in the functional style. This in-depth guide is full of useful diagrams that help you understand FP concepts and begin to think functionally. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Well-written code is easier to test and reuse, simpler to parallelize, and less error prone. Mastering the functional style of programming can help you tackle the demands of modern apps and will lead to simpler expression of complex program logic, graceful error handling, and elegant concurrency. C++ supports FP with templates, lambdas, and other core language features, along with many parts of the STL. About the Book Functional Programming in C++ helps you unleash the functional side of your brain, as you gain a powerful new perspective on C++ coding. You'll discover dozens of examples, diagrams, and illustrations that break down the functional concepts you can apply in C++, including lazy evaluation, function objects and invokables, algebraic data types, and more. As you read, you'll match FP techniques with practical scenarios where they offer the most benefit. What's inside Writing safer code with no performance penalties Explicitly handling errors through the type system Extending C++ with new control structures Composing tasks with DSLs About the Reader Written for developers with two or more years of experience coding in C++. About the Author Ivan Čukić is a core developer at KDE and has been coding in C++ since 1998. He teaches modern C++ and functional programming at the Faculty of Mathematics at the University of Belgrade. Table of Contents Introduction to functional programming Getting started with functional programming Function objects Creating new functions from the old ones Purity: Avoiding mutable state Lazy evaluation Ranges Functional data structures Algebraic data types and pattern matching Monads Template metaprogramming Functional design for concurrent systems Testing and debugging

F# 4.0 Design Patterns - Gene Belitski 2016-11-30 Learn how to apply functional F# design patterns to a huge range of programming challenges, and discover a smart route to building better applications About This Book This book provides a path if you are coming from imperative and object-oriented paradigms It will take you to an intermediate level of functional programming in very practical manner to write enterprise-quality idiomatic F# code Tackle complex computing problems with simple code by fully embracing the functional-first F# paradigm Packed full of practical coding examples to help you master F# programming and author optimal code Who This Book Is For This book is for .NET developers, web programmers, C# developers, and F# developers. So, if you have basic experience in F# programming and developing performance-critical applications, then this book is for you. What You Will Learn Acquire the practical knowledge to use the main functional design patterns Realign some imperative and object-oriented principles under the functional approach Develop your confidence in building and combining first-order and higher-order functions Learn to use core language pattern matching effectively Make use of native F# algebraic data types in place of custom-built classes Recognize and measure the difference in resource consumption between sequences and materialized data collections Navigate and use F# Core libraries with ease by seeing patterns behind specific library functions Master writing generic polymorphic code In Detail Following design patterns is a well-known approach to writing better programs that captures and reuses high-level abstractions that are common in many applications. This book will encourage you to develop an idiomatic F# coding skillset by fully embracing the functional-first F# paradigm. It will also help you harness this powerful instrument to write succinct, bug-free, and cross-platform code. F# 4.0 Design Patterns will start off by helping you develop a functional way of thinking. We will show you how beneficial the functional-first paradigm is and how to use it to get the optimum results. The book will help you acquire the practical knowledge of the main functional design patterns, the relationship of which with the traditional Gang of Four set is not straightforward. We will take you through pattern matching, immutable data types, and sequences in F#. We will also uncover advanced functional patterns, look at polymorphic functions, typical data crunching techniques, adjusting code through augmentation, and generalization. Lastly, we will take a look at the advanced techniques to equip you with everything you need to write flawless code. Style and approach This book will teach you how to write F# code in an idiomatic functional-first manner, thereby improving the productivity of F#

programmers. This book is ideal for an F# programmer who wants using F# in functional-first way.

Functional Programming for Java Developers - Dean Wampler 2011-07-29

"Dean Wampler, Java expert and author of Programmin Scala (O'Reilley), shows you how to apply 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 the code you write."--From p. [4] of cover.

Professional Scala - Janek Bogucki 2016-06-06

Professional Scala provides experienced programmers with fast track coverage aimed at supporting the use of Scala in professional production applications. Skipping over the basics and fundamentals of programming, the discussion launches directly into practical Scala topics with the most up-to-date coverage of the rapidly-expanding language and related tools. Scala bridges the gap between functional and object-oriented programming, and this book details that link with clear a discussion on both Java compatibility and the read-eval-print loop used in functional programming. You'll learn the details of tooling for build and static analysis. You’ll cover unit testing with ScalaTest, documentation with Scaladoc, how to handle concurrency, and much more as you build the in-demand skill set required to use Scala in a real-world production environment. Java-compliant with functional programming properties, Scala's popularity is growing quickly—especially in the rapidly expanding areas of big data and cluster computing. This book explains everything professional programmers need to start using Scala and its main tools quickly and effectively. Master Scala syntax, the SBT interactive build tool, and the REPL workflow Explore functional design patterns, concurrency, and testing Work effectively with Maven, Scaladoc, Scala.js, and more Dive into the advanced type system Find out about Scala.js A working knowledge of Scala puts you in demand. As both the language and applications expand, so do the opportunities for experienced Scala programmers—and many positions are going unfilled. Twitter, Comcast, Netflix, and other major enterprises across industries are using Scala every day, in a number of different applications and capacities. Professional Scala helps you update your skills quickly to start advancing your career.

Programming in Scala - Martin Odersky 2008

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

Modern Programming - Graham Lee 2019-06-27

Discover the untapped features of object-oriented programming and use it with other software tools to code fast, efficient applications. Key Features Explore the complexities of object-oriented programming (OOP) Discover what OOP can do for you Learn to use the key tools and software engineering practices to support your own programming needs Book Description Your experience and knowledge always influence the approach you take and the tools you use to write your programs. With a sound understanding of how to approach your goal and what software paradigms to use, you can create high-performing applications quickly and efficiently. In this two-part book, you'll discover the untapped features of object-oriented programming and use it with other software tools to code fast and efficient applications. The first part of the book begins with a discussion on how OOP is used today and moves on to analyze the ideas and problems that OOP doesn't address. It continues by deconstructing the complexity of OOP, showing you its fundamentally simple core. You'll see that, by using the distinctive elements of OOP, you can learn to build your applications more easily. The next part of this book talks about acquiring the skills to become a better programmer. You'll get an overview of how various tools, such as version control and build management, help make your life easier. This book also discusses the pros and cons of other programming paradigms, such as aspect-oriented programming and functional programming, and helps to select the correct approach for your projects. It ends by talking about the philosophy behind designing software and what it means to be a "good" developer. By the end of this two-part book, you will have learned that OOP is not always complex, and you will know how you can evolve into a better programmer by learning about ethics, teamwork, and documentation. What you will learn Untangle the complexity of object-oriented programming by breaking it down to its essential building blocks Realize the full potential of OOP to design efficient, maintainable programs Utilize coding best practices, including TDD, pair programming and code reviews, to improve your work Use tools, such as source control and IDEs, to work more efficiently Learn how to most productively work with other developers Build your own software development philosophy Who this book is for This book is ideal for programmers who want to understand the philosophy behind creating software and what it means to be "good" at designing software. Programmers who want to deconstruct the OOP paradigm and see how it can be reconstructed in a clear, straightforward way will also find this book useful. To understand the ideas expressed in this book, you must be an experienced programmer who wants to evolve their practice.

Kubernetes Patterns - Bilgin Ibryam 2019-04-09

The way developers design, build, and run software has changed significantly with the evolution of microservices and containers. These modern architectures use new primitives that require a different set of practices than most developers, tech leads, and architects are accustomed to. With this focused guide, Bilgin Ibryam and Roland Huß from Red Hat provide common reusable elements, patterns, principles, and practices for designing and implementing cloud-native applications on Kubernetes. Each pattern includes a description of the problem and a proposed solution with Kubernetes specifics. Many patterns are also backed by concrete code examples. This book is ideal for developers already familiar with basic Kubernetes concepts who want to learn common cloud native patterns. You'll learn about the following pattern categories: Foundational patterns cover the core principles and practices for building container-based cloud-native applications. Behavioral patterns explore finer-grained concepts for managing various types of container and platform interactions. Structural patterns help you organize containers within a pod, the atom of the Kubernetes platform. Configuration patterns provide insight into how application configurations can be handled in Kubernetes. Advanced patterns covers more advanced topics such as extending the platform with operators.

Scala in Action - Nilanjan Raychaudhuri 2013-04-08 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

C++ For Dummies - Stephen R. Davis 2014-05-22

The best-selling C++ For Dummies book makes C++ easier! C++ For Dummies, 7th Edition is the best-selling C++ guide on the market, fully revised for the 2014 update. With over 60% new content, this updated guide reflects the new standards, and includes a new Big Data focus that highlights the use of C++ among popular Big Data software solutions. The book provides step-by-step instruction from the ground up, helping beginners become programmers and allowing intermediate programmers to sharpen their skills. The companion website provides all code mentioned in the text, an updated GNU_C++, the new C++ compiler, and other applications. By the end of the first chapter, you will have programmed your first C++ application! As one of the most commonly used programming languages, C++ is a must-have skill for programmers who wish to remain versatile and marketable. C++ For Dummies, 7th Edition provides clear, concise, expert instruction, which is organized for easy navigation and designed for hands-on learning. Whether you're new to programming, familiar with other languages, or just getting up to speed on the new libraries, features, and generics, this guide provides the information you need. Provides you with an introduction to C++ programming Helps you become a functional programmer Features information on classes, inheritance, and optional features Teaches you 10 ways to avoid adding bugs The book incorporates the newest C++ features into the fundamental instruction, allowing beginners to learn the update as they learn the language. Staying current on the latest developments is a crucial part of being a programmer, and C++ For Dummies, 7th Edition gets you started off on the right foot.

Functional Programming Patterns in Scala and Clojure - Michael Bevilacqua-Linn 2013

Provides a guide to using Scala and Clojure to solve in-depth programming problems.

Functional Thinking - Neal Ford 2014-06-30

If you’re familiar with functional programming basics and want to gain a much deeper understanding, this in-depth guide takes you beyond syntax and demonstrates how you need to think in a new way. Software architect Neal Ford shows intermediate to advanced developers how functional coding allows you to step back a level of abstraction so you can see your programming problem with greater clarity. Each chapter shows you various examples of functional thinking, using numerous code examples from Java 8 and other JVM languages that include functional capabilities. This book may bend your mind, but you'll come away with a much better grasp of functional programming concepts. Understand why many imperative languages are adding functional capabilities Compare functional and imperative solutions to common problems Examine ways to cede control of routine chores to the runtime Learn how memoization and laziness eliminate hand-crafted solutions Explore functional approaches to design patterns and code reuse View real-world examples of functional thinking with Java 8, and in functional architectures and web frameworks Learn the pros and cons of living in a paradigmatically richer world If you're new to functional programming, check out Josh Backfield's book Becoming Functional.

Advanced R - Hadley Wickham 2015-09-15

An Essential Reference for Intermediate and Advanced R Programmers Advanced R presents useful tools and techniques for attacking many types of R programming problems, helping you avoid mistakes and dead ends. With more than ten years of experience programming in R, the author illustrates the elegance, beauty, and flexibility at the heart of R. The book develops the necessary skills to produce quality code that can be used in a variety of circumstances. You will learn: The fundamentals of R, including standard data types and functions Functional programming as a useful framework for solving wide classes of problems The positives and negatives of metaprogramming How to write fast, memory-efficient code This book not only helps current R users become R programmers but also shows existing programmers what’s special about R. Intermediate R programmers can dive deeper into R and learn new strategies for solving diverse problems while programmers from other languages can learn the details of R and understand why R works the way it does.