

C Programming Tutorial Tutorials For Java Concurrency

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Learning Concurrent Programming in Scala - Aleksandar Prokopec 2017-02-22

Learn the art of building intricate, modern, scalable, and concurrent applications using Scala About This Book Make the most of Scala by understanding its philosophy and harnessing the power of multicores Get acquainted with cutting-edge technologies in the field of concurrency, through practical, real-world applications Get this step-by-step guide packed with pragmatic examples Who This Book Is For If you are a Scala programmer with no prior knowledge about concurrent programming, or seeking to broaden your existing knowledge about concurrency, this book is for you. Basic knowledge of the Scala programming language will be helpful. Also if you have a solid knowledge in another programming language, such as Java, you should find this book easily accessible. What You Will Learn Get to grips with the fundamentals of concurrent programming on modern multiprocessor systems Build high-performance concurrent systems from simple, low-level concurrency primitives Express asynchrony in concurrent computations with futures and promises Seamlessly accelerate sequential programs by using data-parallel collections Design safe, scalable, and easy-to-comprehend in-memory transactional data models Transparently create distributed applications that scale across multiple machines Integrate different concurrency frameworks together in large applications Develop and implement scalable and easy-to-understand concurrent applications in Scala 2.12 In Detail Scala is a modern, multiparadigm programming language designed to express common programming patterns in a concise, elegant, and type-safe way. Scala smoothly integrates the features of object-oriented and functional languages. In this second edition, you will find updated coverage of the Scala 2.12 platform. The Scala 2.12 series targets Java 8 and requires it for execution. The book starts by introducing you to the foundations of concurrent programming on the JVM, outlining the basics of the Java Memory Model, and then shows some of the classic building blocks of concurrency, such as the atomic variables, thread pools, and concurrent data structures, along with the caveats of traditional concurrency. The book then walks you through different high-level concurrency abstractions, each tailored toward a specific class of programming tasks, while touching on the latest advancements of async programming capabilities of Scala. It also covers some useful patterns and idioms to use with the techniques described. Finally, the book presents an overview of when to use which concurrency library and demonstrates how they all work together, and then presents new exciting approaches to building concurrent and distributed systems. Style and approach The book provides a step-by-step introduction to concurrent programming. It focuses on easy-to-understand examples that are pragmatic and applicable to real-world applications. Different topics are approached in a bottom-up fashion, gradually going from the simplest foundations to the most advanced features.

Learn Java for Android Development - Jeff Friesen 2014-02-23

Learn Java for Android Development, Third Edition, is an update of a strong selling book that now includes a primer on Android app development (in Chapter 1 and Appendix C, which is distributed in the book's code archive). This book teaches programmers the essential Java language skills necessary for effectively picking up and using the new Android SDK platform to build mobile, embedded, and even PC apps, especially game apps. Android development is hot, and many programmers are interested in joining the fun. However, because this technology is based on Java, you should first obtain a solid grasp of the Java language and its APIs in order to improve your chances of succeeding as an effective Android app developer. This book helps you do that. Each of the book's 16 chapters provides an exercise section that gives you the opportunity to

reinforce your understanding of the chapter's material. Answers to the book's more than 700 exercises are provided in an appendix. A second appendix provides a significant game-oriented Java application, which you can convert into an Android app. Once you complete this one-of-a-kind book written by Jeff Friesen, an expert Java developer and JavaWorld.com columnist, you should be ready to begin your indie or professional Android app development journey. What you'll learn The Java skills necessary for Android development The core Java language fundamentals Classes, objects, inheritance, polymorphism, and interfaces Advanced Java language features (such as generics) The basic Java APIs necessary for Android (such as the String class and threading) The Collections Framework for organizing objects The Concurrency Utilities for simplifying multithreading Classic and New I/O Networking and database access Parsing, creating, and transforming XML documents Additional APIs for creating and accessing ZIP and JAR files, and more Who this book is for This book is for any programmer—including existing Java programmers and Objective-C based iPhone and iPad programmers— of any skill level who needs to obtain a solid understanding of the Java language and foundational Java APIs before jumping into Android app development. Table of Contents 1. Getting Started with Java 2. Learning Language Fundamentals 3. Discovering Classes and Objects 4. Discovering Inheritance, Polymorphism, and Interfaces 5. Mastering Advanced Language Features Part 1 6. Mastering Advanced Language Features Part 2 7. Exploring the Basic APIs Part 1 8. Exploring the Basic APIs Part 2 9. Exploring the Collections Framework 10. Exploring the Concurrency Utilities 11. Performing Classic I/O 12. Accessing Networks 13. Migrating to New I/O 14. Accessing Databases 15. Parsing, Creating, and Transforming XML Documents 16. Focusing on Odds and Ends 17. Appendix A: Solutions to Exercises 18. Appendix B: Four of a Kind 19. Appendix C: Getting Started with Android*** **NOTE: Appendix C is not included in the physical book. Instead, it's distributed as a PDF file that's bundled with the book's code.

Extreme C - Kamran Amini 2019-10-31

Push the limits of what C - and you - can do, with this high-intensity guide to the most advanced capabilities of C Key Features Make the most of C's low-level control, flexibility, and high performance A comprehensive guide to C's most powerful and challenging features A thought-provoking guide packed with hands-on exercises and examples Book Description There's a lot more to C than knowing the language syntax. The industry looks for developers with a rigorous, scientific understanding of the principles and practices. Extreme C will teach you to use C's advanced low-level power to write effective, efficient systems. This intensive, practical guide will help you become an expert C programmer. Building on your existing C knowledge, you will master preprocessor directives, macros, conditional compilation, pointers, and much more. You will gain new insight into algorithm design, functions, and structures. You will discover how C helps you squeeze maximum performance out of critical, resource-constrained applications. C still plays a critical role in 21st-century programming, remaining the core language for precision engineering, aviations, space research, and more. This book shows how C works with Unix, how to implement OO principles in C, and fully covers multi-processing. In Extreme C, Amini encourages you to think, question, apply, and experiment for yourself. The book is essential for anybody who wants to take their C to the next level. What you will learn Build advanced C knowledge on strong foundations, rooted in first principles Understand memory structures and compilation pipeline and how they work, and how to make most out of them Apply object-oriented design principles to your procedural C code Write low-level

code that's close to the hardware and squeezes maximum performance out of a computer system Master concurrency, multithreading, multi-processing, and integration with other languages Unit Testing and debugging, build systems, and inter-process communication for C programming Who this book is for Extreme C is for C programmers who want to dig deep into the language and its capabilities. It will help you make the most of the low-level control C gives you.

[Data-Oriented Programming](#) - Yehonathan Sharvit 2022-09-27

Eliminate the unavoidable complexity of object-oriented designs. The innovative data-oriented programming paradigm makes your systems less complex by making it simpler to access and manipulate data. In Data-Oriented Programming you will learn how to: Separate code from data Represent data with generic data structures Manipulate data with general-purpose functions Manage state without mutating data Control concurrency in highly scalable systems Write data-oriented unit tests Specify the shape of your data Benefit from polymorphism without objects Debug programs without a debugger Data-Oriented Programming is a one-of-a-kind guide that introduces the data-oriented paradigm. This groundbreaking approach represents data with generic immutable data structures. It simplifies state management, eases concurrency, and does away with the common problems you'll find in object-oriented code. The book presents powerful new ideas through conversations, code snippets, and diagrams that help you quickly grok what's great about DOP. Best of all, the paradigm is language-agnostic—you'll learn to write DOP code that can be implemented in JavaScript, Ruby, Python, Clojure, and also in traditional OO languages like Java or C#. About the technology Code that combines behavior and data, as is common in object-oriented designs, can introduce almost unmanageable complexity for state management. The Data-oriented programming (DOP) paradigm simplifies state management by holding application data in immutable generic data structures and then performing calculations using non-mutating general-purpose functions. Your applications are free of state-related bugs and your code is easier to understand and maintain. About the book Data-Oriented Programming teaches you to design software using the groundbreaking data-oriented paradigm. You'll put DOP into action to design data models for business entities and implement a library management system that manages state without data mutation. The numerous diagrams, intuitive mind maps, and a unique conversational approach all help you get your head around these exciting new ideas. Every chapter has a lightbulb moment that will change the way you think about programming. What's inside Separate code from data Represent data with generic data structures Manage state without mutating data Control concurrency in highly scalable systems Write data-oriented unit tests Specify the shape of your data About the reader For programmers who have experience with a high-level programming language like JavaScript, Java, Python, C#, Clojure, or Ruby. About the author Yehonathan Sharvit has over twenty years of experience as a software engineer. He blogs, speaks at conferences, and leads Data-Oriented Programming workshops around the world. Table of Contents PART 1 FLEXIBILITY 1 Complexity of object-oriented programming 2 Separation between code and data 3 Basic data manipulation 4 State management 5 Basic concurrency control 6 Unit tests PART 2 SCALABILITY 7 Basic data validation 8 Advanced concurrency control 9 Persistent data structures 10 Database operations 11 Web services PART 3 MAINTAINABILITY 12 Advanced data validation 13 Polymorphism 14 Advanced data manipulation 15 Debugging

Programming Language Pragmatics - Michael L. Scott 2015-11-30

Programming Language Pragmatics, Fourth Edition, is the most comprehensive programming language textbook available today. It is distinguished and acclaimed for its integrated treatment of language design and implementation, with an emphasis on the fundamental tradeoffs that continue to drive software development. The book provides readers with a solid foundation in the syntax, semantics, and pragmatics of the full range of programming languages, from traditional languages like C to the latest in functional, scripting, and object-oriented programming. This fourth edition has been heavily revised throughout, with expanded coverage of type systems and functional programming, a unified treatment of polymorphism, highlights of the newest language standards, and examples featuring the ARM and x86 64-bit architectures. Updated coverage of the latest developments in programming language design, including C & C++11, Java 8, C# 5, Scala, Go, Swift, Python 3, and HTML 5 Updated treatment of functional programming, with extensive coverage of OCaml New chapters devoted to type systems and composite types Unified and

updated treatment of polymorphism in all its forms New examples featuring the ARM and x86 64-bit architectures

Rust Programming Language Tutorial - Apriorit Inc. 2019-09-10

This is an extensive and beginner-friendly Rust tutorial prepared by our system programming team here at Apriorit. Whether you're a Rust aficionado or only starting your Rust journey, this e-book undoubtedly will prove useful to you. Key Highlights □ Discover the main features of the Rust language □ Learn to develop safer and faster software using Rust □ Learn to establish efficient C bindings □ Get detailed explanations of differences between Rust and C++ Book Description Rust is a c-like systems programming language that provides many advantages over its predecessors. This is why this low-level language has already become so popular in the development community. This book covers the main features of Rust, like zero-cost abstractions, move semantics, trait-based generics, pattern matching, type inference, and minimal runtime. It also explains how the Rust programming language can ensure memory safety and avoid data races in threads. In addition, Rust provides a great opportunity to use wide range of libraries and bind with other languages. The author added a detailed chart comparing feature set of Rust to C++, so you can better understand all the advantages and disadvantages of Rust. This tutorial will be useful for developers who only starts learning Rust, as well as for those who want to improve their knowledge on Rust features. What you will learn □ Discover Rust features that make programming faster and secure □ Guarantee memory safety using Rust □ Benefit from zero-cost abstraction mechanisms □ Avoid data races and a garbage collector □ Get rid of use-after-free, double-free bugs, dangling pointers □ Reduce code duplication □ Use existing libraries written in C and other languages □ Understand the main difference between Rust and C++ About the Author Alexey Lozovsky is a Software Designer at Apriorit.Inc. Apriorit Inc. is a software development service provider headquartered in the Dover, DE, US, with several development centers in Eastern Europe. With over 350 professionals, it brings high-quality services on software consulting, research, and development to software vendors and IT companies worldwide. Apriorit's main specialties are cybersecurity and data management projects, where system programming, driver and kernel level development, research and reversing matter. The company has an independent web platform development department focusing on building cloud platforms for business. Table of Contents Introduction Summary of Features Rust Language Features Zero-Cost Abstractions Move Semantics Guaranteed Memory Safety Ownership Borrowing Mutability and Aliasing Option Types instead of Null Pointers No Uninitialized Variables Threads without Data Races Passing Messages with Channels Safe State Sharing with Locks Trait-Based Generics Traits Define Type Interfaces Traits Implement Polymorphism Traits May be Implemented Automatically Pattern Matching Type Inference Minimal Runtime Efficient C Bindings Calling C from Rust The Libc Crate and Unsafe Blocks Beyond Primitive Types Calling Rust from C Rust vs. C++ Comparison

Programming Language Pragmatics - Michael L. Scott 2006

Accompanying CD-ROM contains ... "advanced/optional content, hundreds of working examples, an active search facility, and live links to manuals, tutorials, compilers, and interpreters on the World Wide Web."-- Page 4 of cover.

Java Concurrency in Practice - Tim Peierls 2006-05-09

Threads are a fundamental part of the Java platform. As multicore processors become the norm, using concurrency effectively becomes essential for building high-performance applications. Java SE 5 and 6 are a huge step forward for the development of concurrent applications, with improvements to the Java Virtual Machine to support high-performance, highly scalable concurrent classes and a rich set of new concurrency building blocks. In Java Concurrency in Practice , the creators of these new facilities explain not only how they work and how to use them, but also the motivation and design patterns behind them. However, developing, testing, and debugging multithreaded programs can still be very difficult; it is all too easy to create concurrent programs that appear to work, but fail when it matters most: in production, under heavy load. Java Concurrency in Practice arms readers with both the theoretical underpinnings and concrete techniques for building reliable, scalable, maintainable concurrent applications. Rather than simply offering an inventory of concurrency APIs and mechanisms, it provides design rules, patterns, and mental models that make it easier to build concurrent programs that are both correct and performant. This book covers:

Basic concepts of concurrency and thread safety
Techniques for building and composing thread-safe classes
Using the concurrency building blocks in java.util.concurrent
Performance optimization dos and don'ts
Testing concurrent programs
Advanced topics such as atomic variables, nonblocking algorithms, and the Java Memory Model

97 Things Every Java Programmer Should Know - Kevlin Henney 2020-05-15

If you want to push your Java skills to the next level, this book provides expert advice from Java leaders and practitioners. You'll be encouraged to look at problems in new ways, take broader responsibility for your work, stretch yourself by learning new techniques, and become as good at the entire craft of development as you possibly can. Edited by Kevlin Henney and Trisha Gee, *97 Things Every Java Programmer Should Know* reflects lifetimes of experience writing Java software and living with the process of software development. Great programmers share their collected wisdom to help you rethink Java practices, whether working with legacy code or incorporating changes since Java 8. A few of the 97 things you should know: "Behavior Is Easy, State Is Hard"—Edson Yanaga "Learn Java Idioms and Cache in Your Brain"—Jeanne Boyarsky "Java Programming from a JVM Performance Perspective"—Monica Beckwith "Garbage Collection Is Your Friend"—Holly K Cummins "Java's Unspeakable Types"—Ben Evans "The Rebirth of Java"—Sander Mak "Do You Know What Time It Is?"—Christin Gorman

Learn Object Oriented Programming Using Java: An UML based - Venkateswarlu N.B. & Prasad E.V. 2010

Learn Object Oriented Programming Using Java: An UML based Treatise with Live Examples from Science and Engineering

Model Checking Software - María del Mar Gallardo 2018-06-15

This book constitutes the refereed proceedings of the 25th International Symposium on Model Checking Software, SPIN 2018, held in Malaga, Spain, in June 2018. The 14 papers presented, 1 short paper, and 1 demo-tool paper, were carefully reviewed and selected from 28 submissions. Topics covered include formal verification techniques for automated analysis of software; formal analysis for modeling languages, such as UML/state charts; formal specification languages, temporal logic, design-by-contract; model checking, automated theorem proving, including SAT and SMT; verifying compilers; abstraction and symbolic execution techniques; and much more.

JAVA AND OBJECT-ORIENTED PROGRAMMING PARADIGM - DEBASISH JANA 2005-01-01

This practice-oriented text explores the intricacies of Java language in the light of different procedural and object-oriented paradigms. It is primarily focussed on the Object-Oriented Programming (OOP) paradigm using Java as a language. The text begins with the programming overview and introduces the reader to the important object-oriented (OO) terms. It then deals with Java development as well as runtime environment set-up along with the steps of compilation and running of a simple program. The text explains the philosophy of Java by highlighting its core features and demonstrating its advantages over C++. Besides, it covers GUI through Java applets, Swing, as well as concurrency handling and synchronization through threads. A chapter is exclusively devoted to fundamental data structures and their applications in Java. The book shows how Unified Modeling Language (UML) represents objects, classes, components, relationships, and architectural design. This comprehensive and student friendly book is intended as a text for the students of computer science and engineering, computer applications (BCA/MCA), and IT courses.

The CERT Oracle Secure Coding Standard for Java - Fred Long 2011-09-06

"In the Java world, security is not viewed as an add-on a feature. It is a pervasive way of thinking. Those who forget to think in a secure mindset end up in trouble. But just because the facilities are there doesn't mean that security is assured automatically. A set of standard practices has evolved over the years. The Secure® Coding® Standard for Java™ is a compendium of these practices. These are not theoretical research papers or product marketing blurbs. This is all serious, mission-critical, battle-tested, enterprise-scale stuff." —James A. Gosling, Father of the Java Programming Language
An essential element of secure coding in the Java programming language is a well-documented and enforceable coding standard. Coding standards encourage programmers to follow a uniform set of rules determined by the requirements of the project and organization, rather than by the programmer's familiarity or preference. Once established, these standards can be used as a metric to evaluate source code (using manual or automated processes).

The CERT® Oracle® Secure Coding Standard for Java™ provides rules designed to eliminate insecure coding practices that can lead to exploitable vulnerabilities. Application of the standard's guidelines will lead to higher-quality systems—robust systems that are more resistant to attack. Such guidelines are required for the wide range of products coded in Java—for devices such as PCs, game players, mobile phones, home appliances, and automotive electronics. After a high-level introduction to Java application security, seventeen consistently organized chapters detail specific rules for key areas of Java development. For each area, the authors present noncompliant examples and corresponding compliant solutions, show how to assess risk, and offer references for further information. Each rule is prioritized based on the severity of consequences, likelihood of introducing exploitable vulnerabilities, and cost of remediation. The standard provides secure coding rules for the Java SE 6 Platform including the Java programming language and libraries, and also addresses new features of the Java SE 7 Platform. It describes language behaviors left to the discretion of JVM and compiler implementers, guides developers in the proper use of Java's APIs and security architecture, and considers security concerns pertaining to standard extension APIs (from the javax package hierarchy). The standard covers security issues applicable to these libraries: lang, util, Collections, Concurrency Utilities, Logging, Management, Reflection, Regular Expressions, Zip, I/O, JMX, JNI, Math, Serialization, and JAXP.

Java Concurrency LiveLessons (Video Training) - Douglas Schmidt 2015

4+ Hours of Video Instruction
Java Concurrency LiveLessons teaches how to develop high-quality concurrent software applications and reusable frameworks through the use of patterns, object-oriented design techniques, and Java programming language features. Description The confluence of multi-core and distributed-core processors, inexpensive mass storage, ubiquitous connectivity, and commodity software platforms is driving the need for software engineers and programmers who understand how to develop concurrent software for client devices that connect to cloud computing platforms. Despite many improvements in processors, storage, and networks, however, developing quality software on-time and on-budget remains hard. Moreover, developing high-quality concurrent software apps and reusable services is even harder. This Java Concurrency LiveLessons describes by example how to apply patterns and frameworks to alleviate the complexity of developing concurrent software via the use of object-oriented design techniques and Java programming language features and class libraries. Many Java application examples are used throughout the course to showcase pattern-oriented design and programming techniques for concurrent software. About the Instructor Dr. Douglas C. Schmidt is the original developer of ACE and The ACE ORB (TAO). He is a professor at Vanderbilt University, where he studies patterns, optimizations, middleware, and model-based tools for distributed real-time and embedded systems. He is a former editor-in-chief of C++ Report and columnist for C/C++ Users Journal . Doug has coauthored four books, including C++ Network Programming , Volume 1 and 2 (Addison-Wesley), Pattern Languages in Programming Design (Addison-Wesley), and Pattern-Oriented Software Design (Wiley). He also authored the video training course Design Patterns in Java LiveLessons (Addison-Wesley). Skill Level Intermediate to Advanced
What You Will Learn
Recognize the inherent and accidental complexities involved with developing concurrent software for Java clients and servers. Understand how pattern-oriented software architecture techniques can and cannot help to alleviate this complexity. Apply key pattern-oriented software architecture techniques to develop reusable concurrent software using Java object-oriented programming language features and class libraries. Know where to find additional sources of information on how to successfully apply pattern-oriented software architecture tec...

The Way to Go - Ivo Balbaert 2012

This book provides the reader with a comprehensive overview of the new open source programming language Go (in its first stable and maintained release Go 1) from Google. The language is devised with Java / C#-like syntax so as to feel familiar to the bulk of programmers today, but Go code is much cleaner and simpler to read, thus increasing the productivity of developers. You will see how Go: simplifies programming with slices, maps, structs and interfaces incorporates functional programming makes error-handling easy and secure simplifies concurrent and parallel programming with goroutines and channels And you will learn how to: make use of Go's excellent standard library program Go the idiomatic way using patterns and best practices in over 225 working examples and 135 exercises This book focuses on the

aspects that the reader needs to take part in the coming software revolution using Go.

Java Threads - Scott Oaks 1999

Threads (Computer programs).

Linux Commands, C, C++, Java and Python Exercises For Beginners - Manjunath.R 2020-03-27

"Hands-On Practice for Learning Linux and Programming Languages from Scratch" Are you new to Linux and programming? Do you want to learn Linux commands and programming languages like C, C++, Java, and Python but don't know where to start? Look no further! An approachable manual for new and experienced programmers that introduces the programming languages C, C++, Java, and Python. This book is for all programmers, whether you are a novice or an experienced pro. It is designed for an introductory course that provides beginning engineering and computer science students with a solid foundation in the fundamental concepts of computer programming. In this comprehensive guide, you will learn the essential Linux commands that every beginner should know, as well as gain practical experience with programming exercises in C, C++, Java, and Python. It also offers valuable perspectives on important computing concepts through the development of programming and problem-solving skills using the languages C, C++, Java, and Python. The beginner will find its carefully paced exercises especially helpful. Of course, those who are already familiar with programming are likely to derive more benefits from this book. After reading this book you will find yourself at a moderate level of expertise in C, C++, Java and Python, from which you can take yourself to the next levels. The command-line interface is one of the nearly all well built trademarks of Linux. There exists an ocean of Linux commands, permitting you to do nearly everything you can be under the impression of doing on your Linux operating system. However, this, at the end of time, creates a problem: because of all of so copious commands accessible to manage, you don't comprehend where and at which point to fly and learn them, especially when you are a learner. If you are facing this problem, and are peering for a painless method to begin your command line journey in Linux, you've come to the right place- as in this book, we will launch you to a hold of well liked and helpful Linux commands. This book gives a thorough introduction to the C, C++, Java, and Python programming languages, covering everything from fundamentals to advanced concepts. It also includes various exercises that let you put what you learn to use in the real world. With step-by-step instructions and plenty of examples, you'll build your knowledge and confidence in Linux and programming as you progress through the exercises. By the end of the book, you'll have a solid foundation in Linux commands and programming concepts, allowing you to take your skills to the next level. Whether you're a student, aspiring programmer, or curious hobbyist, this book is the perfect resource to start your journey into the exciting world of Linux and programming!

C++ Multithreading Cookbook - Milos Ljumovic 2014-10-25

Over 60 recipes to help you create ultra-fast multithreaded applications using C++ with rules, guidelines, and best practices Overview Create multithreaded applications using the power of C++ Upgrade your applications with parallel execution in easy-to-understand steps Stay up to date with new Windows 8 concurrent tasks Avoid classical synchronization problems Understand Windows API and concurrent execution What you will learn from this book Use an object-oriented programming model with inheritance, overloading, and polymorphism Solve common Interprocess Communication problems and avoid deadlocks or starvation problems in your application development Manage threads efficiently using the CThread class Explore .NET CLI/C++ features as well as synchronization objects and techniques Make use of parallel techniques in code design Use machine resources in concurrent execution Enable programs to work with each other using Message Passing Avoid classic synchronization problems In Detail Creating multithreaded applications is a present-day approach towards programming. With the power of C++, you can easily create various types of applications and perform parallelism and optimizations in your existing work. This book is a practical, powerful, and easy-to-understand guide to C++ multithreading. You will learn how to benefit from the multithreaded approach and enhance your development skills to build better applications. This book will not only help you avoid problems when creating parallel code, but also help you to understand synchronization techniques. The end goal of the book will be to impart various multithreading concepts that will enable you to do parallel computing and concurrent programming quickly and efficiently. Approach The book is an easy-to-follow guide for creating multi-threaded applications using C++. Each topic is thoroughly explained with multiple illustrations. Many algorithms, such as Dining Philosophers Problem

give you thorough explanations that will help you to understand and solve concurrent tasks. Who this book is for The book is intended for enterprise developers and programmers who wish to make use of C++ capabilities to learn the multithreaded approach. Knowledge of multithreading along with experience in C++ is an added advantage. However it is not a prerequisite.

Learning Go Programming - Vladimir Vivien 2016-10-26

An insightful guide to learning the Go programming language About This Book Insightful coverage of Go programming syntax, constructs, and idioms to help you understand Go code effectively Push your Go skills, with topics such as, data types, channels, concurrency, object-oriented Go, testing, and network programming Each chapter provides working code samples that are designed to help reader quickly understand respective topic Who This Book Is For If you have prior exposure to programming and are interested in learning the Go programming language, this book is designed for you. It will quickly run you through the basics of programming to let you exploit a number of features offered by Go programming language. What You Will Learn Install and configure the Go development environment to quickly get started with your first program. Use the basic elements of the language including source code structure, variables, constants, and control flow primitives to quickly get started with Go Gain practical insight into the use of Go's type system including basic and composite types such as maps, slices, and structs. Use interface types and techniques such as embedding to create idiomatic object-oriented programs in Go. Develop effective functions that are encapsulated in well-organized package structures with support for error handling and panic recovery. Implement goroutine, channels, and other concurrency primitives to write highly-concurrent and safe Go code Write tested and benchmarked code using Go's built test tools Access OS resources by calling C libraries and interact with program environment at runtime In Detail The Go programming language has firmly established itself as a favorite for building complex and scalable system applications. Go offers a direct and practical approach to programming that let programmers write correct and predictable code using concurrency idioms and a full-featured standard library. This is a step-by-step, practical guide full of real world examples to help you get started with Go in no time at all. We start off by understanding the fundamentals of Go, followed by a detailed description of the Go data types, program structures and Maps. After this, you learn how to use Go concurrency idioms to avoid pitfalls and create programs that are exact in expected behavior. Next, you will be familiarized with the tools and libraries that are available in Go for writing and exercising tests, benchmarking, and code coverage. Finally, you will be able to utilize some of the most important features of GO such as, Network Programming and OS integration to build efficient applications. All the concepts are explained in a crisp and concise manner and by the end of this book, you would be able to create highly efficient programs that you can deploy over cloud. Style and approach The book is written to serve as a reader-friendly step-by-step guide to learning the Go programming language. Each topic is sequentially introduced to build on previous materials covered. Every concept is introduced with easy-to-follow code examples that focus on maximizing the understanding of the topic at hand.

Programming in Go - Mark Summerfield 2012-05-01

Your Hands-On Guide to Go, the Revolutionary New Language Designed for Concurrency, Multicore Hardware, and Programmer Convenience Today's most exciting new programming language, Go, is designed from the ground up to help you easily leverage all the power of today's multicore hardware. With this guide, pioneering Go programmer Mark Summerfield shows how to write code that takes full advantage of Go's breakthrough features and idioms. Both a tutorial and a language reference, Programming in Go brings together all the knowledge you need to evaluate Go, think in Go, and write high-performance software with Go. Summerfield presents multiple idiom comparisons showing exactly how Go improves upon older languages, calling special attention to Go's key innovations. Along the way, he explains everything from the absolute basics through Go's lock-free channel-based concurrency and its flexible and unusual duck-typing type-safe approach to object-orientation. Throughout, Summerfield's approach is thoroughly practical. Each chapter offers multiple live code examples designed to encourage experimentation and help you quickly develop mastery. Wherever possible, complete programs and packages are presented to provide realistic use cases, as well as exercises. Coverage includes Quickly getting and installing Go, and building and running Go programs Exploring Go's syntax, features, and

extensive standard library Programming Boolean values, expressions, and numeric types Creating, comparing, indexing, slicing, and formatting strings Understanding Go's highly efficient built-in collection types: slices and maps Using Go as a procedural programming language Discovering Go's unusual and flexible approach to object orientation Mastering Go's unique, simple, and natural approach to fine-grained concurrency Reading and writing binary, text, JSON, and XML files Importing and using standard library packages, custom packages, and third-party packages Creating, documenting, unit testing, and benchmarking custom packages

Practical Concurrent Haskell - Stefania Loredana Nita 2017-09-14

Learn to use the APIs and frameworks for parallel and concurrent applications in Haskell. This book will show you how to exploit multicore processors with the help of parallelism in order to increase the performance of your applications. Practical Concurrent Haskell teaches you how concurrency enables you to write programs using threads for multiple interactions. After accomplishing this, you will be ready to make your move into application development and portability with applications in cloud computing and big data. You'll use MapReduce and other, similar big data tools as part of your Haskell big data applications development. What You'll Learn Program with Haskell Harness concurrency to Haskell Apply Haskell to big data and cloud computing applications Use Haskell concurrency design patterns in big data Accomplish iterative data processing on big data using Haskell Use MapReduce and work with Haskell on large clusters Who This Book Is For Those with at least some prior experience with Haskell and some prior experience with big data in another programming language such as Java, C#, Python, or C++.

[Design Patterns Explained](#) - Alan Shalloway 2004-10-12

"One of the great things about the book is the way the authors explain concepts very simply using analogies rather than programming examples—this has been very inspiring for a product I'm working on: an audio-only introduction to OOP and software development." -Bruce Eckel "...I would expect that readers with a basic understanding of object-oriented programming and design would find this book useful, before approaching design patterns completely. Design Patterns Explained complements the existing design patterns texts and may perform a very useful role, fitting between introductory texts such as UML Distilled and the more advanced patterns books." -James Noble Leverage the quality and productivity benefits of patterns—without the complexity! Design Patterns Explained, Second Edition is the field's simplest, clearest, most practical introduction to patterns. Using dozens of updated Java examples, it shows programmers and architects exactly how to use patterns to design, develop, and deliver software far more effectively. You'll start with a complete overview of the fundamental principles of patterns, and the role of object-oriented analysis and design in contemporary software development. Then, using easy-to-understand sample code, Alan Shalloway and James Trott illuminate dozens of today's most useful patterns: their underlying concepts, advantages, tradeoffs, implementation techniques, and pitfalls to avoid. Many patterns are accompanied by UML diagrams. Building on their best-selling First Edition, Shalloway and Trott have thoroughly updated this book to reflect new software design trends, patterns, and implementation techniques. Reflecting extensive reader feedback, they have deepened and clarified coverage throughout, and reorganized content for even greater ease of understanding. New and revamped coverage in this edition includes Better ways to start "thinking in patterns" How design patterns can facilitate agile development using eXtreme Programming and other methods How to use commonality and variability analysis to design application architectures The key role of testing into a patterns-driven development process How to use factories to instantiate and manage objects more effectively The Object-Pool Pattern—a new pattern not identified by the "Gang of Four" New study/practice questions at the end of every chapter Gentle yet thorough, this book assumes no patterns experience whatsoever. It's the ideal "first book" on patterns, and a perfect complement to Gamma's classic Design Patterns. If you're a programmer or architect who wants the clearest possible understanding of design patterns—or if you've struggled to make them work for you—read this book.

Job Ready Go - Haythem Balti 2022-09-02

Tackle GoLang with practical and employment-focused instruction In Job Ready Go, software education guru Dr. Haythem Balti delivers an essential and hands-on guide to Go, an open-source programming language developed by Google engineers to combine the most sought-after capabilities of other

programming languages, including Java, C#, and C++. In the book, the author walks you through all the most critical skills necessary for successful, on-the-job Go programming. You'll discover: How to get started with Go, including how to run, build, and test your own go programs Understand control flow and data structures in Go including arrays, slices, maps, and pointers How to leverage structs, interfaces, and methods to organize and reuse code How to leverage go to process data, access different types of files and develop APIs Leverage concurrency and gRPCs to create complex and interconnected systems. Job Ready Go offers readers straightforward and elegant instruction based on the renowned mthree Global Academy and Software Guild training program. It's an essential read for aspiring Go developers looking for a fast-track to developing real-world skills demanded by employers.

Modern Multithreading - Richard H. Carver 2005-11-28

Master the essentials of concurrent programming, including testing and debugging This textbook examines languages and libraries for multithreaded programming. Readers learn how to create threads in Java and C++, and develop essential concurrent programming and problem-solving skills. Moreover, the textbook sets itself apart from other comparable works by helping readers to become proficient in key testing and debugging techniques. Among the topics covered, readers are introduced to the relevant aspects of Java, the POSIX Pthreads library, and the Windows Win32 Applications Programming Interface. The authors have developed and fine-tuned this book through the concurrent programming courses they have taught for the past twenty years. The material, which emphasizes practical tools and techniques to solve concurrent programming problems, includes original results from the authors' research. Chapters include: * Introduction to concurrent programming * The critical section problem * Semaphores and locks * Monitors * Message-passing * Message-passing in distributed programs * Testing and debugging concurrent programs As an aid to both students and instructors, class libraries have been implemented to provide working examples of all the material that is covered. These libraries and the testing techniques they support can be used to assess student-written programs. Each chapter includes exercises that build skills in program writing and help ensure that readers have mastered the chapter's key concepts. The source code for all the listings in the text and for the synchronization libraries is also provided, as well as startup files and test cases for the exercises. This textbook is designed for upper-level undergraduates and graduate students in computer science. With its abundance of practical material and inclusion of working code, coupled with an emphasis on testing and debugging, it is also a highly useful reference for practicing programmers.

Learning Java - Patrick Niemeyer 2005-05-20

Version 5.0 of the Java 2 Standard Edition SDK is the most important upgrade since Java first appeared a decade ago. With Java 5.0, you'll not only find substantial changes in the platform, but to the language itself—something that developers of Java took five years to complete. The main goal of Java 5.0 is to make it easier for you to develop safe, powerful code, but none of these improvements makes Java any easier to learn, even if you've programmed with Java for years. And that means our bestselling hands-on tutorial takes on even greater significance. Learning Java is the most widely sought introduction to the programming language that's changed the way we think about computing. Our updated third edition takes an objective, no-nonsense approach to the new features in Java 5.0, some of which are drastically different from the way things were done in any previous versions. The most essential change is the addition of "generics", a feature that allows developers to write, test, and deploy code once, and then reuse the code again and again for different data types. The beauty of generics is that more problems will be caught during development, and Learning Java will show you exactly how it's done. Java 5.0 also adds more than 1,000 new classes to the Java library. That means 1,000 new things you can do without having to program it in yourself. That's a huge change. With our book's practical examples, you'll come up to speed quickly on this and other new features such as loops and threads. The new edition also includes an introduction to Eclipse, the open source IDE that is growing in popularity. Learning Java, 3rd Edition addresses all of the important uses of Java, such as web applications, servlets, and XML that are increasingly driving enterprise applications.

Java: The Good Parts - Jim Waldo 2010-04-20

What if you could condense Java down to its very best features and build better applications with that

simpler version? In this book, veteran Sun Labs engineer Jim Waldo reveals which parts of Java are most useful, and why those features make Java among the best programming languages available. Every language eventually builds up crud, Java included. The core language has become increasingly large and complex, and the libraries associated with it have grown even more. Learn how to take advantage of Java's best features by working with an example application throughout the book. You may not like some of the features Jim Waldo considers good, but they'll actually help you write better code. Learn how the type system and packages help you build large-scale software Use exceptions to make code more reliable and easier to maintain Manage memory automatically with garbage collection Discover how the JVM provides portability, security, and nearly bug-free code Use Javadoc to embed documentation within the code Take advantage of reusable data structures in the collections library Use Java RMI to move code and data in a distributed network Learn how Java concurrency constructs let you exploit multicore processors

Asynchronous Android Programming - Helder Vasconcelos 2016-07-29

Unlock the power of multi-core mobile devices to build responsive and reactive Android applications About This Book Construct scalable and performant applications to take advantage of multi-thread asynchronous techniques Explore the high-level Android asynchronous constructs available on the Android SDK Choose the most appropriate asynchronous technique to implement your next outstanding feature Who This Book Is For This book is for Android developers who want to learn how to build multithreaded and reliable Android applications using high-level and advanced asynchronous techniques and concepts. No prior knowledge of concurrent and asynchronous programming is required. This book will also be great for Java experts who are new to Android. Whether you are a beginner at Android development or a seasoned Android programmer, this book will guide you through the most basic and advanced asynchronous constructs used in Android programming. What You Will Learn Get familiar with the android process model and low-level concurrent constructs delivered by the Android SDK Use AsyncTask and loader framework to load data in the background, delivering progress results in the meantime Create services that interact with your activity without compromising the UI rendering Learn the working of Android concurrency on the Native Layer Interact with nearby devices over Bluetooth and WiFi communications channels Create and compose tasks with RxJava to execute complex asynchronous work in a predictable way Get accustomed to the use of the Android Loader construct to deliver up-to-date results In Detail Asynchronous programming has acquired immense importance in Android programming, especially when we want to make use of the number of independent processing units (cores) available on the most recent Android devices. With this guide in your hands you'll be able to bring the power of Asynchronous programming to your own projects, and make your Android apps more powerful than ever before! To start with, we will discuss the details of the Android Process model and the Java Low Level Concurrent Framework, delivered by Android SDK. We will also guide you through the high-level Android-specific constructs available on the SDK: Handler, AsyncTask, and Loader. Next, we will discuss the creation of IntentServices, Bound Services and External Services, which can run in the background even when the user is not interacting with it. You will also discover AlarmManager and JobScheduler APIs, which are used to schedule and defer work without sacrificing the battery life. In a more advanced phase, you will create background tasks that are able to execute CPU-intensive tasks in a native code-making use of the Android NDK. You will be then guided through the process of interacting with remote services asynchronously using the HTTP protocol or Google GCM Platform. Using the EventBus library, we will also show how to use the Publish-Subscribe software pattern to simplify communication between the different Android application components by decoupling the event producer from event consumer. Finally, we will introduce RxJava, a popular asynchronous Java framework used to compose work in a concise and reactive way. Asynchronous Android will help you to build well-behaved applications with smooth responsive user interfaces that delight the users with speedy results and data that's always fresh. Style and approach This easy-to-follow guide is full of code examples of real-world use cases. Each asynchronous topic is explained sequentially, from the most basic and low-level to the more advanced, using concise and effective language. Some lifecycle flows and concepts feature illustrations to help you understand the complex interactions between Android entities.

Learning Java Functional Programming - Richard M Reese 2015-10-14

Create robust and maintainable Java applications using the functional style of programming About This

Book Explore how you can blend object-oriented and functional programming styles in Java Use lambda expressions to write flexible and succinct code A tutorial that strengthens your fundamentals in functional programming techniques to enhance your applications Who This Book Is For If you are a Java developer with object-oriented experience and want to use a functional programming approach in your applications, then this book is for you. All you need to get started is familiarity with basic Java object-oriented programming concepts. What You Will Learn Use lambda expressions to simplify code Use function composition to achieve code fluency Apply streams to simple implementations and achieve parallelism Incorporate recursion to support an application's functionality Provide more robust implementations using Optionals Implement design patterns with less code Refactor object-oriented code to create a functional solution Use debugging and testing techniques specific to functional programs In Detail Functional programming is an increasingly popular technology that allows you to simplify many tasks that are often cumbersome and awkward using an object-oriented approach. It is important to understand this approach and know how and when to apply it. Functional programming requires a different mindset, but once mastered it can be very rewarding. This book simplifies the learning process as a problem is described followed by its implementation using an object-oriented approach and then a solution is provided using appropriate functional programming techniques. Writing succinct and maintainable code is facilitated by many functional programming techniques including lambda expressions and streams. In this book, you will see numerous examples of how these techniques can be applied starting with an introduction to lambda expressions. Next, you will see how they can replace older approaches and be combined to achieve surprisingly elegant solutions to problems. This is followed by the investigation of related concepts such as the Optional class and monads, which offer an additional approach to handle problems. Design patterns have been instrumental in solving common problems. You will learn how these are enhanced with functional techniques. To transition from an object-oriented approach to a functional one, it is useful to have IDE support. IDE tools to refactor, debug, and test functional programs are demonstrated through the chapters. The end of the book brings together many of these functional programming techniques to create a more comprehensive application. You will find this book a very useful resource to learn and apply functional programming techniques in Java. Style and approach In this tutorial, each chapter starts with an introduction to the terms and concepts covered in that chapter. It quickly progresses to contrast an object-oriented approach with a functional approach using numerous code examples.

Structured Parallel Programming - Michael McCool 2012-06-25

Programming is now parallel programming. Much as structured programming revolutionized traditional serial programming decades ago, a new kind of structured programming, based on patterns, is relevant to parallel programming today. Parallel computing experts and industry insiders Michael McCool, Arch Robison, and James Reinders describe how to design and implement maintainable and efficient parallel algorithms using a pattern-based approach. They present both theory and practice, and give detailed concrete examples using multiple programming models. Examples are primarily given using two of the most popular and cutting edge programming models for parallel programming: Threading Building Blocks, and Cilk Plus. These architecture-independent models enable easy integration into existing applications, preserve investments in existing code, and speed the development of parallel applications. Examples from realistic contexts illustrate patterns and themes in parallel algorithm design that are widely applicable regardless of implementation technology. The patterns-based approach offers structure and insight that developers can apply to a variety of parallel programming models Develops a composable, structured, scalable, and machine-independent approach to parallel computing Includes detailed examples in both Cilk Plus and the latest Threading Building Blocks, which support a wide variety of computers

C++ Concurrency in Action - Anthony Williams 2019-02-07

Summary This bestseller has been updated and revised to cover all the latest changes to C++ 14 and 17! C++ Concurrency in Action, Second Edition teaches you everything you need to write robust and elegant multithreaded applications in C++17. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology You choose C++ when your applications need to run fast. Well-designed concurrency makes them go even faster. C++ 17 delivers strong support for the multithreaded, multiprocessor programming required for fast graphic processing, machine learning,

and other performance-sensitive tasks. This exceptional book unpacks the features, patterns, and best practices of production-grade C++ concurrency. About the Book C++ Concurrency in Action, Second Edition is the definitive guide to writing elegant multithreaded applications in C++. Updated for C++ 17, it carefully addresses every aspect of concurrent development, from starting new threads to designing fully functional multithreaded algorithms and data structures. Concurrency master Anthony Williams presents examples and practical tasks in every chapter, including insights that will delight even the most experienced developer. What's inside Full coverage of new C++ 17 features Starting and managing threads Synchronizing concurrent operations Designing concurrent code Debugging multithreaded applications About the Reader Written for intermediate C and C++ developers. No prior experience with concurrency required. About the Author Anthony Williams has been an active member of the BSI C++ Panel since 2001 and is the developer of the just::thread Pro extensions to the C++ 11 thread library. Table of Contents Hello, world of concurrency in C++! Managing threads Sharing data between threads Synchronizing concurrent operations The C++ memory model and operations on atomic types Designing lock-based concurrent data structures Designing lock-free concurrent data structures Designing concurrent code Advanced thread management Parallel algorithms Testing and debugging multithreaded applications

Extreme C - Kamran Amini 2019-10-31

Push the limits of what C - and you - can do, with this high-intensity guide to the most advanced capabilities of C Key Features Make the most of C's low-level control, flexibility, and high performance A comprehensive guide to C's most powerful and challenging features A thought-provoking guide packed with hands-on exercises and examples Book Description There's a lot more to C than knowing the language syntax. The industry looks for developers with a rigorous, scientific understanding of the principles and practices. Extreme C will teach you to use C's advanced low-level power to write effective, efficient systems. This intensive, practical guide will help you become an expert C programmer. Building on your existing C knowledge, you will master preprocessor directives, macros, conditional compilation, pointers, and much more. You will gain new insight into algorithm design, functions, and structures. You will discover how C helps you squeeze maximum performance out of critical, resource-constrained applications. C still plays a critical role in 21st-century programming, remaining the core language for precision engineering, aviations, space research, and more. This book shows how C works with Unix, how to implement OO principles in C, and fully covers multi-processing. In Extreme C, Amini encourages you to think, question, apply, and experiment for yourself. The book is essential for anybody who wants to take their C to the next level. What you will learn Build advanced C knowledge on strong foundations, rooted in first principles Understand memory structures and compilation pipeline and how they work, and how to make most out of them Apply object-oriented design principles to your procedural C code Write low-level code that's close to the hardware and squeezes maximum performance out of a computer system Master concurrency, multithreading, multi-processing, and integration with other languages Unit Testing and debugging, build systems, and inter-process communication for C programming Who this book is for Extreme C is for C programmers who want to dig deep into the language and its capabilities. It will help you make the most of the low-level control C gives you.

Learn Java 12 Programming - Nick Samoylov 2019-04-30

A comprehensive guide to get started with Java and gain insights into major concepts such as object-oriented, functional, and reactive programming Key Features Strengthen your knowledge of important programming concepts and the latest features in Java Explore core programming topics including GUI programming, concurrency, and error handling Learn the idioms and best practices for writing high-quality Java code Book Description Java is one of the preferred languages among developers, used in everything right from smartphones, and game consoles to even supercomputers, and its new features simply add to the richness of the language. This book on Java programming begins by helping you learn how to install the Java Development Kit. You will then focus on understanding object-oriented programming (OOP), with exclusive insights into concepts like abstraction, encapsulation, inheritance, and polymorphism, which will help you when programming for real-world apps. Next, you'll cover fundamental programming structures of Java such as data structures and algorithms that will serve as the building blocks for your apps. You will also delve into core programming topics that will assist you with error handling, debugging, and testing

your apps. As you progress, you'll move on to advanced topics such as Java libraries, database management, and network programming, which will hone your skills in building professional-grade apps. Further on, you'll understand how to create a graphic user interface using JavaFX and learn to build scalable apps by taking advantage of reactive and functional programming. By the end of this book, you'll not only be well versed with Java 10, 11, and 12, but also gain a perspective into the future of this language and software development in general. What you will learn Learn and apply object-oriented principles Gain insights into data structures and understand how they are used in Java Explore multithreaded, asynchronous, functional, and reactive programming Add a user-friendly graphic interface to your application Find out what streams are and how they can help in data processing Discover the importance of microservices and use them to make your apps robust and scalable Explore Java design patterns and best practices to solve everyday problems Learn techniques and idioms for writing high-quality Java code Who this book is for Students, software developers, or anyone looking to learn new skills or even a language will find this book useful. Although this book is for beginners, professional programmers can benefit from it too. Previous knowledge of Java or any programming language is not required.

The Go Programming Language - Alan A. A. Donovan 2015-11-16

The Go Programming Language is the authoritative resource for any programmer who wants to learn Go. It shows how to write clear and idiomatic Go to solve real-world problems. The book does not assume prior knowledge of Go nor experience with any specific language, so you'll find it accessible whether you're most comfortable with JavaScript, Ruby, Python, Java, or C++. The first chapter is a tutorial on the basic concepts of Go, introduced through programs for file I/O and text processing, simple graphics, and web clients and servers. Early chapters cover the structural elements of Go programs: syntax, control flow, data types, and the organization of a program into packages, files, and functions. The examples illustrate many packages from the standard library and show how to create new ones of your own. Later chapters explain the package mechanism in more detail, and how to build, test, and maintain projects using the go tool. The chapters on methods and interfaces introduce Go's unconventional approach to object-oriented programming, in which methods can be declared on any type and interfaces are implicitly satisfied. They explain the key principles of encapsulation, composition, and substitutability using realistic examples. Two chapters on concurrency present in-depth approaches to this increasingly important topic. The first, which covers the basic mechanisms of goroutines and channels, illustrates the style known as communicating sequential processes for which Go is renowned. The second covers more traditional aspects of concurrency with shared variables. These chapters provide a solid foundation for programmers encountering concurrency for the first time. The final two chapters explore lower-level features of Go. One covers the art of metaprogramming using reflection. The other shows how to use the unsafe package to step outside the type system for special situations, and how to use the cgo tool to create Go bindings for C libraries. The book features hundreds of interesting and practical examples of well-written Go code that cover the whole language, its most important packages, and a wide range of applications. Each chapter has exercises to test your understanding and explore extensions and alternatives. Source code is freely available for download from <http://gopl.io/> and may be conveniently fetched, built, and installed using the go get command.

Learning Java - Patrick Niemeyer 2013-06-13

Java is the preferred language for many of today's leading-edge technologies—everything from smartphones and game consoles to robots, massive enterprise systems, and supercomputers. If you're new to Java, the fourth edition of this bestselling guide provides an example-driven introduction to the latest language features and APIs in Java 6 and 7. Advanced Java developers will be able to take a deep dive into areas such as concurrency and JVM enhancements. You'll learn powerful new ways to manage resources and exceptions in your applications, and quickly get up to speed on Java's new concurrency utilities, and APIs for web services and XML. You'll also find an updated tutorial on how to get started with the Eclipse IDE, and a brand-new introduction to database access in Java.

Concurrent Patterns and Best Practices - Atul S. Khot 2018-09-27

A definitive guide to mastering and implementing concurrency patterns in your applications Key Features Build scalable apps with patterns in multithreading, synchronization, and functional programming Explore the parallel programming and multithreading techniques to make the code run

fasterEfficiently use the techniques outlined to build reliable applicationsBook Description Selecting the correct concurrency architecture has a significant impact on the design and performance of your applications. This book explains how to leverage the different characteristics of parallel architecture to make your code faster and more efficient. To start with, you'll understand the basic concurrency concepts and explore patterns around explicit locking, lock free programming, futures & actors. Then, you'll get insights into different concurrency models and parallel algorithms and put them to practice in different scenarios to realize your application's true potential. We'll take you through multithreading design patterns, such as master, slave, leader, follower, map-reduce, and monitor, also helping you to learn hands-on coding using these patterns. Once you've grasped all of this, you'll move on to solving problems using synchronizer patterns. You'll discover the rationale for these patterns in distributed & parallel applications, followed by studying how future composition, immutability and the monadic flow help create more robust code. Toward the end of the book, you'll learn about the actor paradigm and actor patterns - the message passing concurrency paradigm. What you will learnExplore parallel architecture Get acquainted with concurrency models Internalize design themes by implementing multithreading patterns Get insights into concurrent design patterns Discover design principles behind many java threading abstractions Work with functional concurrency patternsWho this book is for This is a must-have guide for developers who want to learn patterns to build scalable and high-performing apps. It's assumed that you already have a decent level of programming knowledge.

Java GC Tutorials - Herong's Tutorial Examples - Herong Yang 2019-09-07

This book is a collection of tutorial notes and sample codes written by the author while he was learning JVM GC (Garbage Collection) processes. Topics include Java Garbage Collectors, STW (Stop-The-World), Serial Collector, Parallel Collector, Concurrent Collector, G1 Collector, GC Algorithms, Generational GC, Regional GC, Heap Memory Management, Young/New Generation, Tenured/Old Generation, Object Reference, Eden Space, Survivor Spaces, Minor GC, Major GC, Full GC, Performance Tuning, Throughput/Latency Performance, Heap Footprint. Updated in 2019 (Version 1.10) with Java 12.

Learn Java 17 Programming - Nick Samoylov 2022-07-29

Explore the essential concepts of programming such as object-oriented, functional, and reactive programming by writing code and building projects using the latest LTS version of Java Key FeaturesA step-by-step guide for beginners to get started with programming in Java 17Explore core programming topics including GUI programming, concurrency, and error handlingWrite efficient code and build projects while learning the fundamentals of programmingBook Description Java is one of the most preferred languages among developers. It is used in everything right from smartphones and game consoles to even supercomputers, and its new features simply add to the richness of the language. This book on Java programming begins by helping you learn how to install the Java Development Kit. You'll then focus on understanding object-oriented programming (OOP), with exclusive insights into concepts such as abstraction, encapsulation, inheritance, and polymorphism, which will help you when programming for real-world apps. Next, you'll cover fundamental programming structures of Java such as data structures and algorithms that will serve as the building blocks for your apps with the help of sample programs and practice examples. You'll also delve into core programming topics that will assist you with error handling, debugging, and testing your apps. As you progress, you'll move on to advanced topics such as Java libraries, database management, and network programming and also build a sample project to help you understand the applications of these concepts. By the end of this Java book, you'll not only have become well-versed

with Java 17 but also gained a perspective into the future of this language and have the skills to code efficiently with best practices. What you will learnUnderstand and apply object-oriented principles in JavaExplore Java design patterns and best practices to solve everyday problemsBuild user-friendly and attractive GUIs with easeUnderstand the usage of microservices with the help of practical examplesDiscover techniques and idioms for writing high-quality Java codeGet to grips with the usage of data structures in JavaWho this book is for This book is for those who would like to start a new career in the modern Java programming profession, as well as those who do it professionally already and would like to refresh their knowledge of the latest Java and related technologies and ideas.

Concurrent and Real-Time Programming in Java - Andrew Wellings 2004-11-22

Real-time functionality is essential for developing many consumer, industrial, and systems devices. While the C/C++ programming language is most often used in the creation of real-time software, the Java language, with its simple and familiar object-oriented programming model, offers many advantages over current real-time practices. Concurrent and Real-Time Programming in Java covers the motivations for, and semantics of, the extensions and modifications to the Java programming environment that enable the Java platform (Virtual Machine) to meet the requirements and constraints of real-time development. Key aspects of concurrent and real-time programming and how they are implemented in Java are discussed, such as concurrency, memory management, real-time scheduling, and real-time resource sharing.

Concurrent Programming in Java - Douglas Lea 2000

Software -- Programming Languages.

C, C++, Java, Python, PHP, JavaScript and Linux For Beginners - Manjunath.R 2020-04-13

"An Introduction to Programming Languages and Operating Systems for Novice Coders" An ideal addition to your personal library. With the aid of this indispensable reference book, you may quickly gain a grasp of Python, Java, JavaScript, C, C++, CSS, Data Science, HTML, LINUX and PHP. It can be challenging to understand the programming language's distinctive advantages and charms. Many programmers who are familiar with a variety of languages frequently approach them from a constrained perspective rather than enjoying their full expressivity. Some programmers incorrectly use Programmatic features, which can later result in serious issues. The programmatic method of writing programs—the ideal approach to use programming languages—is explained in this book. This book is for all programmers, whether you are a novice or an experienced pro. Its numerous examples and well paced discussions will be especially beneficial for beginners. Those who are already familiar with programming will probably gain more from this book, of course. I want you to be prepared to use programming to make a big difference. "C, C++, Java, Python, PHP, JavaScript and Linux For Beginners" is a comprehensive guide to programming languages and operating systems for those who are new to the world of coding. This easy-to-follow book is designed to help readers learn the basics of programming and Linux operating system, and to gain confidence in their coding abilities. With clear and concise explanations, readers will be introduced to the fundamental concepts of programming languages such as C, C++, Java, Python, PHP, and JavaScript, as well as the basics of the Linux operating system. The book offers step-by-step guidance on how to write and execute code, along with practical exercises that help reinforce learning. Whether you are a student or a professional, "C, C++, Java, Python, PHP, JavaScript and Linux For Beginners" provides a solid foundation in programming and operating systems. By the end of this book, readers will have a solid understanding of the core concepts of programming and Linux, and will be equipped with the knowledge and skills to continue learning and exploring the exciting world of coding.