

Java 8 Streams Best Practices And Pitfalls Cheat Sheet

The upcoming Java 9 module system will affect existing applications and offer new ways of creating modular and maintainable applications. With this hands-on book, Java developers will learn not only about the joys of modularity, but also about the patterns needed to create truly modular and reliable applications. Authors Sander Mak and Paul Bakker teach you the concepts behind the Java 9 module system, along with the new tools it offers. You'll also gain learn how to modularize existing code and how to build new Java applications in a modular way. Understand Java 9 module system concepts Master the patterns and practices for building truly modular applications Migrate existing applications and libraries to Java 9 modules Use JDK 9 tools for modular development and migration

6+ Hours of Video Instruction Overview Java 8 Lambda Expressions and Streams LiveLessons, 2nd Edition, covers the most important new features introduced in Java 8. The video training is presented by Marty Hall, a bestselling author, world-renowned instructor, and president of the training company coreservlets.com. If you are comfortable with previous Java versions and want to learn the new Java 8 features as quickly as possible, continue on: You are in the right place. If, however, you are new to Java and want learn the full range of Java programming, but in the context of the latest version (Java 8), please see the video Learning Modern Java: A Crash Course Using Java 8 LiveLessons instead. Description This LiveLessons video explains the syntax and usage of Java 8 lambda expressions, shows the prebuilt functions, covers streams thoroughly, describes best practices for the use of parallel operations, provides examples of the types of applications to which lambdas and streams are well suited, and shows how applying the power of streams can dramatically simplify file I/O. The final version of Java 8 was released in 2014, and it is by far the most significant upgrade to the Java programming language since at least 2004, probably since Java's inception. In general, Java 8's high-level goals were to make code more flexible, to better use multiple cores, and to more easily deal with large data sets. Specifically, there are four main reasons that it is important for existing Java programmers to know the new Java 8 features: More flexible and reusable code (thanks to lambdas). Lambda expressions in Java 8 are a way of representing "functions," and their judicious use can make your code significantly more adaptable and reusable. Convenience (thanks to high-level Stream methods). Streams are wrappers around collections or other data sources that use lambda expressions pervasively. They support many convenient and high-performance operations that use lambdas, including "map," "reduce," "filter," and "forEach." These methods make many types of code much simpler to write compared to the clunky and low-level Collection methods. Faster and more memory-efficient code (thanks to lazy evaluation and automatic parallelization). Streams support lazy evaluation, so if you map firstName over Employees, filter ones that start with "P," then choose the first, it really only maps and filters until the first match. Streams can also be designated as parallel, so that t...

Java Closures and Lambda introduces you to significant new changes to the Java language coming out of what is termed Project Lambda. These new changes make their debut in Java 8, and their highlight is the long-awaited support for lambda expressions in

the Java language. You'll learn to write lambda expressions and use them to create functional interfaces and default methods for evolving APIs, among many other uses. The changes in Java 8 are significant. Syntax and usage of the language are changed considerably with the introduction of closures and lambda expressions. This book takes you through these important changes from introduction to mastery. Through a set of clear examples, you'll learn to refactor existing code to take advantage of the new language features. You'll learn what those features can do for you, and when they are best applied. You'll learn to design and write new code having these important new features in mind from the very beginning. Clearly explains the fantastic benefits resulting from Project Lambda Explains the syntax and IDE support for the new features Shows how to streamline your code by bringing some of the benefits of functional programming to the Java language Illustrates parallelism in closures through Stream and Spliterator objects Explains API evolution by adding methods to existing interfaces without breaking existing interface implementations, a technique addressing potential multiple inheritance issues

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 through 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.

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

The Pragmatic Programmers classic is back! Freshly updated for modern software development, Pragmatic Unit Testing in Java 8 With JUnit teaches you how to write and run easily maintained unit tests in JUnit with confidence. You'll learn mnemonics to help you know what tests to write, how to remember all the boundary conditions, and what the qualities of a good test are. You'll see how unit tests can pay off by allowing you to keep your system code clean, and you'll learn how to handle the stuff that seems too tough to test. Pragmatic Unit Testing in Java 8 With JUnit steps you through all the important unit testing topics. If you've never written a unit test, you'll see screen shots from Eclipse, IntelliJ IDEA, and NetBeans that will help you get past the hard part--getting set up and started. Once past the basics, you'll learn why you want to write unit tests and how to effectively use JUnit. But the meaty part of the book is its collected unit testing wisdom from people who've been there, done that on production systems for at least 15 years: veteran author and developer Jeff Langr, building on the wisdom of Pragmatic Programmers Andy Hunt and Dave Thomas. You'll learn: How to craft your unit tests to minimize your effort in maintaining them. How to use unit tests to help keep your system clean. How to test the tough stuff. Memorable mnemonics to help you remember what's important when writing unit tests. How to help your team reap and sustain the benefits of unit testing. You won't just learn about unit testing in theory--you'll work through numerous code examples. When it comes to programming, hands-on is the only way to learn!

Summary Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microservices break up your code into small, distributed, and independent services that require careful forethought and design. Fortunately, Spring Boot and Spring Cloud simplify your microservice applications, just as the Spring Framework simplifies enterprise Java development. Spring Boot removes the boilerplate code involved with writing a REST-based service. Spring Cloud provides a suite of tools for the discovery, routing, and deployment of microservices to the enterprise and the cloud. About the Book Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. You'll learn to do microservice design as you build and deploy your first Spring Cloud application. Throughout the book, carefully selected real-life examples expose microservice-based patterns for configuring, routing, scaling, and deploying your services.

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You'll see how Spring's intuitive tooling can help augment and refactor existing applications with micro services. What's Inside Core microservice design principles Managing configuration with Spring Cloud Config Client-side resiliency with Spring, Hystrix, and Ribbon Intelligent routing using Netflix Zuul Deploying Spring Cloud applications About the Reader This book is written for developers with Java and Spring experience. About the Author John Carnell is a senior cloud engineer with twenty years of experience in Java. Table of contents Welcome to the cloud, Spring Building microservices with Spring Boot Controlling your configuration with Spring Cloud configuration server On service discovery When bad things happen: client resiliency patterns with Spring Cloud and Netflix Hystrix Service routing with Spring Cloud and Zuul Securing your microservices Event-driven architecture with Spring Cloud Stream Distributed tracing with Spring Cloud Sleuth and Zipkin Deploying your microservices

Kotlin is a powerful and pragmatic language, but it's not enough to know about its features. We also need to know when they should be used and in what way. This book is a guide for Kotlin developers on how to become excellent Kotlin developers. It presents and explains in-depth the best practices for Kotlin development. Each item is presented as a clear rule of thumb, supported by detailed explanations and practical examples.

Looks at the principles and clean code, includes case studies showcasing the practices of writing clean code, and contains a list of heuristics and "smells" accumulated from the process of writing clean code.

Summary Functional Programming in Java teaches Java developers how to incorporate the most powerful benefits of functional programming into new and existing Java code. You'll learn to think functionally about coding tasks in Java and use FP to make your applications easier to understand, optimize, maintain, and scale. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Here's a bold statement: learn functional programming and you'll be a better Java developer. Fortunately, you don't have to master every aspect of FP to get a big payoff. If you take in a few core principles, you'll see an immediate boost in the scalability, readability, and maintainability of your code. And did we mention that you'll have fewer bugs? Let's get started! About the Book

Functional Programming in Java teaches you how to incorporate the powerful benefits of functional programming into new and existing Java code. This book uses easy-to-grasp examples, exercises, and illustrations to teach core FP principles such as referential transparency, immutability, persistence, and laziness. Along the way, you'll discover which of the new functionally inspired features of Java 8 will help you most. What's Inside Writing code that's easier to read and reason about Safer concurrent and parallel programming Handling errors without exceptions Java 8 features like lambdas, method references, and functional interfaces About the Reader Written for Java developers with no previous FP experience. About the Author Pierre-Yves Saumont is a seasoned Java developer with three decades of experience designing and building enterprise software. He is an R&D engineer at Alcatel-Lucent Submarine Networks. Table of Contents What is functional programming? Using functions in Java Making Java more functional Recursion, corecursion, and memoization Data handling with lists Dealing with optional data Handling errors and exceptions Advanced list handling Working with laziness More data handling with trees Solving real problems with advanced trees Handling state mutation in a functional way Functional input/output Sharing mutable state with actors Solving common problems functionally

Are you looking for a deeper understanding of the Java™ programming language so that you can write code that is clearer, more correct, more robust, and more reusable? Look no further! Effective Java™, Second Edition, brings together seventy-eight indispensable programmer's

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rules of thumb: working, best-practice solutions for the programming challenges you encounter every day. This highly anticipated new edition of the classic, Jolt Award-winning work has been thoroughly updated to cover Java SE 5 and Java SE 6 features introduced since the first edition. Bloch explores new design patterns and language idioms, showing you how to make the most of features ranging from generics to enums, annotations to autoboxing. Each chapter in the book consists of several “items” presented in the form of a short, standalone essay that provides specific advice, insight into Java platform subtleties, and outstanding code examples. The comprehensive descriptions and explanations for each item illuminate what to do, what not to do, and why. Highlights include: New coverage of generics, enums, annotations, autoboxing, the for-each loop, varargs, concurrency utilities, and much more Updated techniques and best practices on classic topics, including objects, classes, libraries, methods, and serialization How to avoid the traps and pitfalls of commonly misunderstood subtleties of the language Focus on the language and its most fundamental libraries: java.lang, java.util, and, to a lesser extent, java.util.concurrent and java.io Simply put, *Effective Java™, Second Edition*, presents the most practical, authoritative guidelines available for writing efficient, well-designed programs.

Invoke TDD principles for end-to-end application development with Java About This Book Explore the most popular TDD tools and frameworks and become more proficient in building applications Create applications with better code design, fewer bugs, and higher test coverage, enabling you to get them to market quickly Implement test-driven programming methods into your development workflows Who This Book Is For If you're an experienced Java developer and want to implement more effective methods of programming systems and applications, then this book is for you. What You Will Learn Explore the tools and frameworks required for effective TDD development Perform the Red-Green-Refactor process efficiently, the pillar around which all other TDD procedures are based Master effective unit testing in isolation from the rest of your code Design simple and easily maintainable codes by implementing different techniques Use mocking frameworks and techniques to easily write and quickly execute tests Develop an application to implement behaviour-driven development in conjunction with unit testing Enable and disable features using Feature Toggles In Detail Test-driven development (TDD) is a development approach that relies on a test-first procedure that emphasises writing a test before writing the necessary code, and then refactoring the code to optimize it. The value of performing TDD with Java, one of the most established programming languages, is to improve the productivity of programmers, the maintainability and performance of code, and develop a deeper understanding of the language and how to employ it effectively. Starting with the basics of TDD and reasons why its adoption is beneficial, this book will take you from the first steps of TDD with Java until you are confident enough to embrace the practice in your day-to-day routine. You'll be guided through setting up tools, frameworks, and the environment you need, and will dive right in to hands-on exercises with the goal of mastering one practice, tool, or framework at a time. You'll learn about the Red-Green-Refactor procedure, how to write unit tests, and how to use them as executable documentation. With this book you'll also discover how to design simple and easily maintainable code, work with mocks, utilise behaviour-driven development, refactor old legacy code, and release a half-finished feature to production with feature toggles. You will finish this book with a deep understanding of the test-driven development methodology and the confidence to apply it to application programming with Java. Style and approach An easy-to-follow, hands-on guide to building applications through effective coding practices. This book covers practical examples by introducing different problems, each one designed as a learning exercise to help you understand each aspect of TDD.

The #1 Guide for Serious Programmers: Fully Updated for Java SE 9, 10 & 11 Cay Horstmann's *Core Java, Volume I—Fundamentals*, Eleventh Edition, is the definitive guide to writing robust, maintainable code with the Java SE 9, 10, and 11 language and libraries. Horstmann

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writes for serious programmers who use Java in production projects, and need a deep, practical understanding of the language and API. Throughout, he delivers what you need most: hundreds of real (non-toy) examples revealing the most powerful, effective ways to get the job done. Updated examples reflect the new var keyword and take advantage of improvements in the Java API. You'll learn how to use JShell's new Read-Eval-Print Loop (REPL) for more rapid and exploratory development, and apply new features of the APIs for streams, input/output, processes, and concurrency. In this first of two volumes, Horstmann offers in-depth coverage of fundamental Java and UI programming, including object-oriented programming, generics, collections, lambda expressions, Swing design, concurrency, and functional programming. If you're an experienced programmer moving to Java SE 9, 10, or 11, there's no better source for expert insight, solutions, and code. Master foundational techniques, idioms, and best practices for writing superior Java code Efficiently implement encapsulation and inheritance Use sound principles of object-oriented design Leverage the full power of objects with interfaces, lambda expressions, and inner classes Harden programs through effective exception handling and debugging Write safer, more reusable code with generic programming Improve performance and efficiency with Java's standard collections Build cross-platform GUIs with the Swing toolkit Fully utilize multicore processors with Java's improved concurrency See Core Java, Volume II—Advanced Features, Eleventh Edition (ISBN-13: 978-0-13-516631-4), for expert coverage of Java 9, 10, and 11 enterprise features, the module system, annotations, networking, security, and advanced UI programming. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details. Get the deep insights you need to master efficient architectural design considerations and solve common design problems in your enterprise applications. Key Features The benefits and applicability of using different design patterns in JAVA EE Learn best practices to solve common design and architectural challenges Choose the right patterns to improve the efficiency of your programs Book Description Patterns are essential design tools for Java developers. Java EE Design Patterns and Best Practices helps developers attain better code quality and progress to higher levels of architectural creativity by examining the purpose of each available pattern and demonstrating its implementation with various code examples. This book will take you through a number of patterns and their Java EE-specific implementations. In the beginning, you will learn the foundation for, and importance of, design patterns in Java EE, and then will move on to implement various patterns on the presentation tier, business tier, and integration tier. Further, you will explore the patterns involved in Aspect-Oriented Programming (AOP) and take a closer look at reactive patterns. Moving on, you will be introduced to modern architectural patterns involved in composing microservices and cloud-native applications. You will get acquainted with security patterns and operational patterns involved in scaling and monitoring, along with some patterns involved in deployment. By the end of the book, you will be able to efficiently address common problems faced when developing applications and will be comfortable working on scalable and maintainable projects of any size. What you will learn Implement presentation layers, such as the front controller pattern Understand the business tier and implement the business delegate pattern Master the implementation of AOP Get involved with asynchronous EJB methods and REST services Involve key patterns in the adoption of microservices architecture Manage performance and scalability for enterprise-level applications Who this book is for Java developers who are comfortable with programming in Java and now want to learn how to implement design patterns to create robust, reusable and easily maintainable apps.

Are you are worried you are missing out on the latest version of Java? When you hear a term such as lambda expressions - do you wonder what you are neglecting? If so, Java 8 New Features will squash your concerns and deliver a quick and easy-to-understand guide to what's new in Java 8. The latest version of Java offers numerous improvements and new features to better utilize Java. Streams, for example,

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supports a fluent approach to problem solving and lets the developer take advantage of concurrency with minimal effort, whilst Lambda Expressions offer new ways of expressing a solution that brings efficiency and succinct programming. Get up-to-speed here with this color book! - Learn how interface enhancements - such as default methods - affect new additions to Java 8 and their impact on multiple inheritance between interfaces - Use lambda expressions to simplify solutions to development problems - Discover how the new Stream interface supports query type problems - Explore the new support for concurrent processing including that supported by Streams - Find out why the new date and time enhancements make working with time so much easier than it used to be - Includes information on the Nashorn JavaScript Engine, File IO Enhancements, and Project Jigsaw

This compact book introduces the concepts of Java lambdas and parallel streams in a concise form. It begins by introducing new supporting features such as functional interfaces, default methods and more. After this, the author demonstrates how streams can be parallelized in a very simple way—within certain limits, no knowledge about the thread management is needed. Nevertheless, some basic elements in the context of parallelism need to be considered. Here, the book provides a variety of information and best practices. What You Will Learn Master lambdas and streams Work with the default method Harness streams and the stream() function Use Stream and Spliterator Take advantage of parallel streams Work with collectors and concurrency Who This Book Is For Experienced Java programmers and developers.

This open access book constitutes the proceedings of the 23rd International Conference on Fundamental Approaches to Software Engineering, FASE 2020, which took place in Dublin, Ireland, in April 2020, and was held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2020. The 23 full papers, 1 tool paper and 6 testing competition papers presented in this volume were carefully reviewed and selected from 81 submissions. The papers cover topics such as requirements engineering, software architectures, specification, software quality, validation, verification of functional and non-functional properties, model-driven development and model transformation, software processes, security and software evolution.

Coding and testing are generally considered separate areas of expertise. In this practical book, Java expert Scott Oaks takes the approach that anyone who works with Java should be adept at understanding how code behaves in the Java Virtual Machine—including the tunings likely to help performance. This updated second edition helps you gain in-depth knowledge of Java application performance using both the JVM and the Java platform. Developers and performance engineers alike will learn a variety of features, tools, and processes for improving the way the Java 8 and 11 LTS releases perform. While the emphasis is on production-supported releases and features, this book also features previews of exciting new technologies such as ahead-of-time compilation and experimental garbage collections. Understand how various Java platforms and compilers affect performance Learn how Java garbage collection works Apply four principles to obtain best results from performance testing Use the JDK and other tools to learn how a Java application is performing Minimize the garbage collector's impact through tuning and programming practices Tackle performance issues in Java APIs Improve Java-driven database application performance

Summary Manning's bestselling Java 8 book has been revised for Java 9! In *Modern Java in Action*, you'll build on your existing Java language skills with the newest features and techniques. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Modern applications take advantage of innovative designs, including microservices, reactive architectures, and streaming data. Modern Java features like lambdas, streams, and the long-awaited Java Module System make implementing these designs significantly easier. It's time to upgrade your skills and meet these challenges head on! About the Book *Modern Java in Action* connects new features of the Java language with their practical applications. Using crystal-clear examples and careful attention to detail, this book respects your time. It will help you expand your existing knowledge of core Java as you master modern additions like the Streams API and the Java Module System, explore new approaches to concurrency, and learn how functional concepts can help you write code that's easier to read and maintain. What's inside Thoroughly revised edition of Manning's bestselling *Java 8 in Action* New features in Java 8, Java 9, and beyond Streaming data and reactive programming The Java Module System About the Reader Written for developers familiar with core Java features. About the Author Raoul-Gabriel Urma is CEO of Cambridge Spark. Mario Fusco is a senior software engineer at Red Hat. Alan Mycroft is a University of Cambridge computer science professor; he cofounded the Raspberry Pi Foundation.

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This book, gathering the Proceedings of the 2018 Computing Conference, offers a remarkable collection of chapters covering a wide range of topics in intelligent systems, computing and their real-world applications. The Conference attracted a total of 568 submissions from pioneering researchers, scientists, industrial engineers, and students from all around the world. These submissions underwent a double-blind peer review process. Of those 568 submissions, 192 submissions (including 14 poster papers) were selected for inclusion in these proceedings. Despite computer science's

comparatively brief history as a formal academic discipline, it has made a number of fundamental contributions to science and society—in fact, along with electronics, it is a founding science of the current epoch of human history ('the Information Age') and a main driver of the Information Revolution. The goal of this conference is to provide a platform for researchers to present fundamental contributions, and to be a premier venue for academic and industry practitioners to share new ideas and development experiences. This book collects state of the art chapters on all aspects of Computer Science, from classical to intelligent. It covers both the theory and applications of the latest computer technologies and methodologies. Providing the state of the art in intelligent methods and techniques for solving real-world problems, along with a vision of future research, the book will be interesting and valuable for a broad readership.

Understand and utilize Java Lambdas About This Book Take a deep dive into one of the single most important additions to modern Java Master Java lambdas, and fully understand functions, classes, and scope. Improve your programming skills, which will enable you to write cleaner and more dynamic code Who This Book Is For Learning Java Lambdas is for developers looking to upgrade their Java skills and familiarize themselves with one of the most important new features of Java. This book is not for absolute beginners and will be more suited to professionals who are already comfortable with Java coding. You should have a basic knowledge of Java before reading this book. What You Will Learn What a lambda is and how it differs from other Java features How to use lambdas effectively in your own projects The use of method references and advanced scoping The difference between lambdas and closures The differences in bytecode produced when using lambdas In Detail In this short book, we take an in-depth look at lambdas in Java, and their supporting features. The book covers essential topics, such as functional interfaces and type inference, and the key differences between lambdas and closures. You will learn about the background to functional programming and lambdas, before moving on to understanding the basic syntax of lambdas and what differentiates these anonymous functions from standard anonymous classes. Lastly, you'll learn how to invoke lambdas and look at the bytecode generated. After reading this book, you'll understand lambdas in depth, their background, syntax, implementation details, and how and when to use them. You'll also have a clear knowledge of the difference between functions and classes, and why that's relevant to lambdas. This knowledge will enable you to appreciate the improvements to type inference that drive a lot of the new features in modern Java, and will increase your understanding of method references and scoping. Style and approach This book is a deep dive into one of the core new features of the Java language – Lambdas. It covers them in great details, making sure that you fully understand how lambdas work, and how they can be put to use in your own programs.

Summary: "Written for programmers with a background in high level language programming, the book applies the Deitel

signature live code approach to teaching programming and explores the Java language in depth ... "

The introduction of functional programming concepts in Java SE 8 was a drastic change for this venerable object-oriented language. Lambda expressions, method references, and streams fundamentally changed the idioms of the language, and many developers have been trying to catch up ever since. This cookbook will help. With more than 70 detailed recipes, author Ken Kousen shows you how to use the newest features of Java to solve a wide range of problems. For developers comfortable with previous Java versions, this guide covers nearly all of Java SE 8, and includes a chapter focused on changes coming in Java 9. Need to understand how functional idioms will change the way you write code? This cookbook—chock full of use cases—is for you. Recipes cover: The basics of lambda expressions and method references Interfaces in the `java.util.function` package Stream operations for transforming and filtering data Comparators and Collectors for sorting and converting streaming data Combining lambdas, method references, and streams Creating instances and extract values from Java's Optional type New I/O capabilities that support functional streams The Date-Time API that replaces the legacy Date and Calendar classes Mechanisms for experimenting with concurrency and parallelism

Beginning Java 8 Language Features covers essential and advanced features of the Java programming language such as the new lambda expressions (closures), inner classes, threads, I/O, Collections, garbage collection, streams, and more. Author Kishori Sharan provides over 60 diagrams and 290 complete programs to help you visualize and better understand the topics covered in this book. The book starts with a series of chapters on the essential language features provided by Java, including annotations, inner classes, reflection, and generics. These topics are then complemented by details of how to use lambda expressions, allowing you to build powerful and efficient Java programs. The chapter on threads follows this up and discusses everything from the very basic concepts of a thread to the most advanced topics such as synchronizers, the fork/join framework, and atomic variables. This book contains unmatched coverage of Java I/O, including NIO 2.0, the Path API, the FileVisitor API, the watch service and asynchronous file I/O. With this in-depth knowledge, your data- and file-management programs will be able to take advantage of every feature of Java's powerful I/O framework. Finally, you'll learn how to use the Stream API, a new, exciting addition to Java 8, to perform aggregate operations on collections of data elements using functional-style programming. You'll examine the details of stream processing such as creating streams from different data sources, learning the difference between sequential and parallel streams, applying the filter-map-reduce pattern, and dealing with optional values.

The Definitive Guide to Lambda Expressions Mastering Lambdas: Java Programming in a Multicore World describes how the lambda-related features of Java SE 8 will enable Java to meet the challenges of next-generation parallel hardware

architectures. The book explains how to write lambdas, and how to use them in streams and in collection processing, providing code examples throughout. You'll learn how to use lambda expressions to take full advantage of performance improvements provided by today's multicore hardware. This Oracle Press book covers:

- Why lambdas were needed, and how they will change Java programming Syntax of lambda expressions
- The basic operation of streams and pipelines
- Using collectors and reduction to end pipelines
- Creating streams Spliterators, the fork/join framework, and exceptions
- Examining stream performance with microbenchmarking API evolution using default methods

This book is a collection of developer code recipes and best practices for persisting data using Spring, particularly Spring Boot. The book is structured around practical recipes, where each recipe discusses a performance case or performance-related case, and almost every recipe has one or more applications. Mainly, when we try to accomplish something (e.g., read some data from the database), there are several approaches to do it, and, in order to choose the best way, you have to know the implied trades-off from a performance perspective. You'll see that in the end, all these penalties slow down the application. Besides presenting the arguments that favor a certain choice, the application is written in Spring Boot style which is quite different than plain Hibernate. Persistence is an important set of techniques and technologies for accessing and using data, and this book demonstrates that data is mobile regardless of specific applications and contexts. In Java development, persistence is a key factor in enterprise, ecommerce, cloud and other transaction-oriented applications. After reading and using this book, you'll have the fundamentals to apply these persistence solutions into your own mission-critical enterprise Java applications that you build using Spring.

What You Will Learn

- Shape *-to-many associations for best performances
- Effectively exploit Spring Projections (DTO)
- Learn best practices for batching inserts, updates and deletes
- Effectively fetch parent and association in a single SELECT
- Learn how to inspect Persistent Context content
- Dissect pagination techniques (offset and keyset)
- Handle queries, locking, schemas, Hibernate types, and more

Who This Book Is For Any Spring and Spring Boot developer that wants to squeeze the persistence layer performances.

This book, written by one of the designers of generics, is a thorough explanation of how to use generics, and particularly, the effect this facility has on the way developers use collections.

Learning a complex new language is no easy task especially when it s an object-oriented computer programming language like Java. You might think the problem is your brain. It seems to have a mind of its own, a mind that doesn't always want to take in the dry, technical stuff you're forced to study. The fact is your brain craves novelty. It's constantly searching, scanning, waiting for something unusual to happen. After all, that's the way it was built to help you stay alive. It takes all the routine, ordinary, dull stuff and filters it to the background so it won't interfere with your brain's real

work--recording things that matter. How does your brain know what matters? It's like the creators of the Head First approach say, suppose you're out for a hike and a tiger jumps in front of you, what happens in your brain? Neurons fire. Emotions crank up. Chemicals surge. That's how your brain knows. And that's how your brain will learn Java. Head First Java combines puzzles, strong visuals, mysteries, and soul-searching interviews with famous Java objects to engage you in many different ways. It's fast, it's fun, and it's effective. And, despite its playful appearance, Head First Java is serious stuff: a complete introduction to object-oriented programming and Java. You'll learn everything from the fundamentals to advanced topics, including threads, network sockets, and distributed programming with RMI. And the new, second edition focuses on Java 5.0, the latest version of the Java language and development platform. Because Java 5.0 is a major update to the platform, with deep, code-level changes, even more careful study and implementation is required. So learning the Head First way is more important than ever. If you've read a Head First book, you know what to expect--a visually rich format designed for the way your brain works. If you haven't, you're in for a treat. You'll see why people say it's unlike any other Java book you've ever read. By exploiting how your brain works, Head First Java compresses the time it takes to learn and retain--complex information. Its unique approach not only shows you what you need to know about Java syntax, it teaches you to think like a Java programmer. If you want to be bored, buy some other book. But if you want to understand Java, this book's for you.

Focusing 100% on the exam objectives, OCA: Oracle Certified Associate Java SE 8 Programmer I Study Guide is designed to make you fully prepared for this challenging exam. Between Java 7 and Java 8, Oracle has made the biggest changes to the language in a long time. In particular, developers will need to learn functional programming for the first time to pass the certification. This comprehensive study guide covers all of the key topic areas Java programmers will need to be familiar with, including: Java basics Operators, conditionals and loops String and StringBuilder, Array and ArrayList Methods and encapsulation Inheriting abstract classes and interfaces Exceptions Class design Object-Oriented design principles and design patterns Generics and collections Functional programming Advanced strings and localization Exceptions and assertions IO and NIO Threads Concurrency JDBC With this complete Study Guide, Java developers will gain the information, understanding, and practice they need to pass the OCAJP 8 exam.

The Hitchhiker's Guide to Python takes the journeyman Pythonista to true expertise. More than any other language, Python was created with the philosophy of simplicity and parsimony. Now 25 years old, Python has become the primary or secondary language (after SQL) for many business users. With popularity comes diversity—and possibly dilution. This guide, collaboratively written by over a hundred members of the Python community, describes best practices currently used by package and application developers. Unlike other books for this audience, The Hitchhiker's Guide is light on

reusable code and heavier on design philosophy, directing the reader to excellent sources that already exist.

A guide to developing network programs covers networking fundamentals as well as TCP and UDP sockets, multicasting protocol, content handlers, servlets, I/O, parsing, Java Mail API, and Java Secure Sockets Extension.

17+ Hours of Video Instruction Java is the world's most popular and widely applied programming language, but it is large, complex, and sometimes difficult to get started with. These LiveLessons supply a practical, hands-on introduction to programming with Java 8, the latest version of the language. The course provides thorough coverage of the foundational Java topics: basic syntax, object-oriented programming, handling exceptions, core data structures, and generic types. It also gives fast-moving coverage of some of the most important libraries: concurrent programming with Java threads, parallel programming with fork/join, network programming, file I/O, and serialization. Finally, it gives detailed explanation of the syntax and usage of lambda expressions and streams, the most important new features in Java 8. In each section, it gives details on the most important topics, surveys more advanced or lesser-used topics, stresses best practices, and provides plenty of working examples. If you are new to Java and want to quickly learn the full range of Java programming, but in the context of the latest version (Java 8), continue on: you are in the right place. If, however, you are already comfortable with previous Java versions and want to learn only the new Java 8 features, see *Java 8 Lambda Expressions and Streams* instead. Description In these LiveLessons, expert Java developer, instructor, and author Marty Hall gives a crash course on Java programming. This fast-moving video series is aimed at developers who have used other languages, but who have little or no Java experience. The first section looks at installing Java and Eclipse, making projects, and understanding loops, conditionals, and other basic Java syntax. The second section covers object-oriented programming using the Java 8 style. Topics include classes, methods, constructors, interfaces, abstract classes, enums, and lots of guidance on style and best OOP practices. The third section looks at exception handling, lists and maps, generic types, printf, inner classes, and unit testing with JUnit. The fourth section looks at asynchronous event handling, concurrent programming with Java threads, and parallel programming using Java's fork/join framework. The fifth section looks at the syntax and usage of lambda expressions and streams, with particular emphasis on best practices and the use of parallel streams. The final section looks at file and network I/O: Java 8 stream-based file reading...

Java 8 Lambdas Pragmatic Functional Programming"O'Reilly Media, Inc."

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

In today's app-driven era, when programs are asynchronous and responsiveness is so vital, reactive programming can help you write code that's more reliable, easier to scale, and better-performing. With this practical book, Java developers will first learn how to view problems in the reactive way, and then build programs that leverage the best features of this exciting new programming paradigm. Authors Tomasz Nurkiewicz and Ben Christensen include concrete examples that use the RxJava library to solve real-world performance issues on Android devices as well as the server. You'll learn how RxJava leverages parallelism and concurrency to help you solve today's problems. This book also provides a preview of the upcoming 2.0 release. Write programs that react to multiple asynchronous sources of input without descending into "callback hell" Get to that aha! moment when you understand how to solve problems in the reactive way Cope with Observables that produce data too quickly to be consumed Explore strategies to debug and to test programs written in the reactive style Efficiently exploit parallelism and concurrency in your programs Learn about the transition to RxJava version 2

"Java 8 in Action is a clearly written guide to the new features of Java 8. It begins with a practical introduction to lambdas, using real-world Java code. Next, it covers the new Streams API and shows how you can use it to make collection-based code radically easier to understand and maintain. It also explains other major Java 8 features including default methods, Optional, CompletableFuture, and the new Date and Time API ... This book/course is written for programmers familiar with Java and basic OO programming."-- Resource description page.

This book concisely introduces Java 8's most valuable new features, including lambda expressions (closures) and streams. If you're an experienced Java programmer, the author's practical insights and sample code will help you quickly take advantage of these and other Java language and platform improvements.

Create various design patterns to master the art of solving problems using Java Key Features This book demonstrates the shift from OOP to functional programming and covers reactive and functional patterns in a clear and step-by-step manner All the design patterns come with a practical use case as part of the explanation, which will improve your

productivity Tackle all kinds of performance-related issues and streamline your development Book Description Having a knowledge of design patterns enables you, as a developer, to improve your code base, promote code reuse, and make the architecture more robust. As languages evolve, new features take time to fully understand before they are adopted en masse. The mission of this book is to ease the adoption of the latest trends and provide good practices for programmers. We focus on showing you the practical aspects of smarter coding in Java. We'll start off by going over object-oriented (OOP) and functional programming (FP) paradigms, moving on to describe the most frequently used design patterns in their classical format and explain how Java's functional programming features are changing them. You will learn to enhance implementations by mixing OOP and FP, and finally get to know about the reactive programming model, where FP and OOP are used in conjunction with a view to writing better code. Gradually, the book will show you the latest trends in architecture, moving from MVC to microservices and serverless architecture. We will finish off by highlighting the new Java features and best practices. By the end of the book, you will be able to efficiently address common problems faced while developing applications and be comfortable working on scalable and maintainable projects of any size. What you will learn Understand the OOP and FP paradigms Explore the traditional Java design patterns Get to know the new functional features of Java See how design patterns are changed and affected by the new features Discover what reactive programming is and why is it the natural augmentation of FP Work with reactive design patterns and find the best ways to solve common problems using them See the latest trends in architecture and the shift from MVC to serverless applications Use best practices when working with the new features Who this book is for This book is for those who are familiar with Java development and want to be in the driver's seat when it comes to modern development techniques. Basic OOP Java programming experience and elementary familiarity with Java is expected.

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