

Java 9 Modularity Patterns And Practices For Developing Maintainable Applications

With Pro JavaScript Design Patterns, you'll start with the basics of object-oriented programming in JavaScript applicable to design patterns, including making JavaScript more expressive, inheritance, encapsulation, information hiding, and more. The book then details how to implement and take advantage of several design patterns in JavaScript. Each chapter is packed with real-world examples of how the design patterns are best used and expert advice on writing better code, as well as what to watch out for. Along the way you'll discover how to create your own libraries and APIs for even more efficient coding.

Explains how to leverage Java's architecture and mechanisms to design enterprise applications and considers code modularity, nonduplication, network efficiency, maintainability, and reusability.

A catalog of solutions to commonly occurring design problems, presenting 23 patterns that allow designers to create flexible and reusable designs for object-oriented software. Describes the circumstances in which each pattern is applicable, and discusses the consequences and trade-offs of using the pattern within a larger design. Patterns are

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compiled from real systems, and include code for implementation in object-oriented programming languages like C++ and Smalltalk. Includes a bibliography. Annotation copyright by Book News, Inc., Portland, OR

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

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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. Table of Contents PART 1 - FUNDAMENTALS Java 8, 9, 10, and 11: what's happening? Passing code with behavior parameterization Lambda expressions PART 2 - FUNCTIONAL-STYLE DATA PROCESSING WITH STREAMS Introducing streams Working with streams Collecting data with streams Parallel data processing and performance PART 3 - EFFECTIVE PROGRAMMING WITH STREAMS AND LAMBDA Collection API enhancements Refactoring, testing, and debugging Domain-specific languages using lambdas PART 4 - EVERYDAY JAVA Using Optional as a better alternative to null New Date and Time API Default methods The Java Module System PART 5 - ENHANCED JAVA CONCURRENCY Concepts behind CompletableFuture and reactive programming CompletableFuture: composable asynchronous programming Reactive programming PART 6 - FUNCTIONAL PROGRAMMING AND FUTURE JAVA EVOLUTION Thinking functionally Functional programming techniques Blending OOP

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and FP: Comparing Java and Scala Conclusions and where next for Java

"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

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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. The software development ecosystem is constantly

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changing, providing a constant stream of new tools, frameworks, techniques, and paradigms. Over the past few years, incremental developments in core engineering practices for software development have created the foundations for rethinking how architecture changes over time, along with ways to protect important architectural characteristics as it evolves. This practical guide ties those parts together with a new way to think about architecture and time.

With the award-winning book *Agile Software Development: Principles, Patterns, and Practices*, Robert C. Martin helped bring Agile principles to tens of thousands of Java and C++ programmers. Now .NET programmers have a definitive guide to agile methods with this completely updated volume from Robert C. Martin and Micah Martin, *Agile Principles, Patterns, and Practices in C#*. This book presents a series of case studies illustrating the fundamentals of Agile development and Agile design, and moves quickly from UML models to real C# code. The introductory chapters lay out the basics of the agile movement, while the later chapters show proven techniques in action. The book includes many source code examples that are also available for download from the authors' Web site. Readers will come away from this book understanding Agile principles, and the fourteen practices of Extreme Programming Spiking, splitting, velocity, and

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planning iterations and releases Test-driven development, test-first design, and acceptance testing Refactoring with unit testing Pair programming Agile design and design smells The five types of UML diagrams and how to use them effectively Object-oriented package design and design patterns How to put all of it together for a real-world project Whether you are a C# programmer or a Visual Basic or Java programmer learning C#, a software development manager, or a business analyst, *Agile Principles, Patterns, and Practices in C#* is the first book you should read to understand agile software and how it applies to programming in the .NET Framework.

Users can dramatically improve the design, performance, and manageability of object-oriented code without altering its interfaces or behavior.

"Refactoring" shows users exactly how to spot the best opportunities for refactoring and exactly how to do it, step by step.

Java continues to grow and evolve, and this cookbook continues to evolve in tandem. With this guide, you'll get up to speed right away with hundreds of hands-on recipes across a broad range of Java topics. You'll learn useful techniques for everything from string handling and functional programming to network communication. Each recipe includes self-contained code solutions that you can freely use, along with a discussion of how

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and why they work. If you're familiar with Java basics, this cookbook will bolster your knowledge of the language and its many recent changes, including how to apply them in your day-to-day development. This updated edition covers changes through Java 12 and parts of 13 and 14. Recipes include: Methods for compiling, running, and debugging Packaging Java classes and building applications Manipulating, comparing, and rearranging text Regular expressions for string and pattern matching Handling numbers, dates, and times Structuring data with collections, arrays, and other types Object-oriented and functional programming techniques Input/output, directory, and filesystem operations Network programming on both client and server Processing JSON for data interchange Multithreading and concurrency Using Java in big data applications Interfacing Java with other languages

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.

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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

The design and analysis of efficient data structures has long been recognized as a key component of the Computer Science curriculum. Goodrich, Tomassia and Goldwasser's approach to this classic topic is based on the object-oriented paradigm as the framework of choice for the design of data structures. For each ADT presented in the text, the authors provide an associated Java interface.

Concrete data structures realizing the ADTs are provided as Java classes implementing the interfaces. The Java code implementing fundamental data structures in this book is organized in a single Java package, `net.datastructures`. This package forms a coherent library of data structures and algorithms in Java specifically designed for educational purposes in a way that is complimentary with the Java Collections Framework.

If you're an experienced Java developer in the enterprise, this practical, hands-on book shows you how to use OSGi to design, develop, and deploy modular cloud applications. You'll quickly learn how to use OSGi, through concise code examples and a set of best practices derived from the authors' experiences with real-world projects. Through the

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course of this book, you'll learn to develop modern web applications with tools and techniques such as RESTful Web Services, NoSQL, provisioning, elasticity, Auto Scaling, hotfixes, and automatic failover. Code samples are available from GitHub. Work with dynamic OSGi services to create modular applications Explore the basics of OSGi bundles and modular application design Learn advanced topics, including semantic versioning, integration testing, and configuring components Understand OSGi pitfalls, anti-patterns, and features you should avoid Create a modular architecture for cloud-based web applications Discover how maintainability, extensibility, scalability, and testability are affected by modular design Get a look at various options for creating web applications with a modular approach Interact with persistent storage services, including relational databases and NoSQL Examine alternatives for deploying modular applications to the cloud

Liskov (engineering, Massachusetts Institute of Technology) and Guttag (computer science and engineering, also at MIT) present a component-based methodology for software program development. The book focuses on modular program construction: how to get the modules right and how to organize a program as a collection of modules. It explains the key types of abstractions, demonstrates how to develop specifications that define these

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abstractions, and illustrates how to implement them using numerous examples. An introduction to key Java concepts is included. Annotation copyrighted by Book News, Inc., Portland, OR.

Create clean code with Dependency Injection principles
Key Features Use DI to make your code loosely coupled to manage and test your applications easily on Spring 5 and Google Guice
Learn the best practices and methodologies to implement DI
Write more maintainable Java code by decoupling your objects from their implementations
Book Description Dependency Injection (DI) is a design pattern that allows us to remove the hard-coded dependencies and make our application loosely coupled, extendable, and maintainable. We can implement DI to move the dependency resolution from compile-time to runtime. This book will be your one stop guide to write loosely coupled code using the latest features of Java 9 with frameworks such as Spring 5 and Google Guice. We begin by explaining what DI is and teaching you about IoC containers. Then you'll learn about object compositions and their role in DI. You'll find out how to build a modular application and learn how to use DI to focus your efforts on the business logic unique to your application and let the framework handle the infrastructure work to put it all together. Moving on, you'll gain knowledge of Java 9's new features and modular framework and how DI works in Java 9.

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Next, we'll explore Spring and Guice, the popular frameworks for DI. You'll see how to define injection keys and configure them at the framework-specific level. After that, you'll find out about the different types of scopes available in both popular frameworks. You'll see how to manage dependency of cross-cutting concerns while writing applications through aspect-oriented programming. Towards the end, you'll learn to integrate any third-party library in your DI-enabled application and explore common pitfalls and recommendations to build a solid application with the help of best practices, patterns, and anti-patterns in DI. What you will learn

- Understand the benefits of DI and fo from a tightly coupled design to a cleaner design organized around dependencies
- See Java 9's new features and modular framework
- Set up Guice and Spring in an application so that it can be used for DI
- Write integration tests for DI applications
- Use scopes to handle complex application scenarios
- Integrate any third-party library in your DI-enabled application
- Implement Aspect-Oriented Programming to handle common cross-cutting concerns such as logging, authentication, and transactions
- Understand IoC patterns and anti-patterns in DI

Who this book is for
This book is for Java developers who would like to implement DI in their application. Prior knowledge of the Spring and Guice frameworks and Java programming is assumed.

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The Art of UNIX Programming poses the belief that understanding the unwritten UNIX engineering tradition and mastering its design patterns will help programmers of all stripes to become better programmers. This book attempts to capture the engineering wisdom and design philosophy of the UNIX, Linux, and Open Source software development community as it has evolved over the past three decades, and as it is applied today by the most experienced programmers. Eric Raymond offers the next generation of "hackers" the unique opportunity to learn the connection between UNIX philosophy and practice through careful case studies of the very best UNIX/Linux programs.

Explore the power of distributed computing to write concurrent, scalable applications in Java About This Book Make the best of Java 9 features to write succinct code Handle large amounts of data using HPC Make use of AWS and Google App Engine along with Java to establish a powerful remote computation system Who This Book Is For This book is for basic to intermediate level Java developers who is aware of object-oriented programming and Java basic concepts. What You Will Learn Understand the basic concepts of parallel and distributed computing/programming Achieve performance improvement using parallel processing, multithreading, concurrency, memory sharing, and hpc cluster computing Get an in-depth

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understanding of Enterprise Messaging concepts with Java Messaging Service and Web Services in the context of Enterprise Integration Patterns Work with Distributed Database technologies Understand how to develop and deploy a distributed application on different cloud platforms including Amazon Web Service and Docker CaaS Concepts Explore big data technologies Effectively test and debug distributed systems Gain thorough knowledge of security standards for distributed applications including two-way Secure Socket Layer In Detail Distributed computing is the concept with which a bigger computation process is accomplished by splitting it into multiple smaller logical activities and performed by diverse systems, resulting in maximized performance in lower infrastructure investment. This book will teach you how to improve the performance of traditional applications through the usage of parallelism and optimized resource utilization in Java 9. After a brief introduction to the fundamentals of distributed and parallel computing, the book moves on to explain different ways of communicating with remote systems/objects in a distributed architecture. You will learn about asynchronous messaging with enterprise integration and related patterns, and how to handle large amount of data using HPC and implement distributed computing for databases. Moving on, it explains how to deploy distributed applications on different cloud

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platforms and self-contained application development. You will also learn about big data technologies and understand how they contribute to distributed computing. The book concludes with the detailed coverage of testing, debugging, troubleshooting, and security aspects of distributed applications so the programs you build are robust, efficient, and secure. Style and approach This is a step-by-step practical guide with real-world examples.

Update your Java knowledge with the latest features of Java 11, such as the low-Overhead Garbage Collector, Local-Variable Syntax for Lambda Parameters, and Dynamic Class-File Constants Key Features Explore the latest features in Java 9, Java 10, and Java 11 Enhance your Java application development and migration approaches Full coverage of modular Java applications, G1 Garbage Collector, JMH Book Description Java 11 is a long-term release and its new features add to the richness of the language. It emphasizes variable-type inference, performance improvements, along with simplified multithreading. The Java platform has a special emphasis on modularity, making this the programming platform of choice for millions of developers. The modern Java platform can be used to build robust software applications, including enterprise-level and mobile applications. Fully updated for Java 11, this book stands to help any

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Java developer enjoy the richness of the Java programming language. Mastering Java 11 is your one-stop guide to fully understanding recent Java platform updates. It contains detailed explanations of the recent features introduced in Java 9, Java 10, and Java 11 along with obtaining practical guidance on how to apply the new features. As you make your way through the chapters, you'll discover further information on the developments of the Java platform and learn about the changes introduced by the variable handles and Project Coin, along with several enhancements in relation to import statements processing. In the concluding chapters, you'll learn to improve your development productivity, making your applications more efficient. You'll also be able to get to grips with the command-line flags with respect to various utilities and the command-line utility changes featured in the current Java platform. By the end of the book, you'll have obtained an advanced level understanding of the Java platform and its recent changes. What you will learn

- Write modular Java applications
- Migrate existing Java applications to modular ones
- Understand how the default G1 garbage collector works
- Leverage the possibilities provided by the newly introduced Java Shell
- Performance test your application effectively with the JVM harness
- Learn how Java supports the HTTP 2.0 standard
- Find out how to use the new Process API
- Explore the

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additional enhancements and features of Java 9, 10, and 11 Who this book is for Mastering Java 11 is for experienced Java developers with a solid understanding of the Java language and want to progress to an advanced level.

The practice of enterprise application development has benefited from the emergence of many new enabling technologies. Multi-tiered object-oriented platforms, such as Java and .NET, have become commonplace. These new tools and technologies are capable of building powerful applications, but they are not easily implemented. Common failures in enterprise applications often occur because their developers do not understand the architectural lessons that experienced object developers have learned. Patterns of Enterprise Application Architecture is written in direct response to the stiff challenges that face enterprise application developers. The author, noted object-oriented designer Martin Fowler, noticed that despite changes in technology--from Smalltalk to CORBA to Java to .NET--the same basic design ideas can be adapted and applied to solve common problems. With the help of an expert group of contributors, Martin distills over forty recurring solutions into patterns. The result is an indispensable handbook of solutions that are applicable to any enterprise application platform. This book is actually two books in one. The first section is a short tutorial on developing enterprise

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applications, which you can read from start to finish to understand the scope of the book's lessons. The next section, the bulk of the book, is a detailed reference to the patterns themselves. Each pattern provides usage and implementation information, as well as detailed code examples in Java or C#. The entire book is also richly illustrated with UML diagrams to further explain the concepts. Armed with this book, you will have the knowledge necessary to make important architectural decisions about building an enterprise application and the proven patterns for use when building them. The topics covered include

- Dividing an enterprise application into layers
- The major approaches to organizing business logic
- An in-depth treatment of mapping between objects and relational databases
- Using Model-View-Controller to organize a Web presentation
- Handling concurrency for data that spans multiple transactions
- Designing distributed object interfaces

Develop modular applications using the Java Platform Module System, the single most anticipated feature in Java 9. You will improve maintainability and performance of your Java applications by deploying only modules that are needed and encapsulating their implementation details. Until now Java has been monolithic. Using any one part of Java has meant incorporating the entirety of the runtime environment, an approach ill-suited to the

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increasing number of IoT devices such as fitness monitors, kitchen appliances, toys and games, and so forth. This book shows a new way, to make Java scale from the smallest of footprints in the smallest of devices through desktop PCs and on up to server platforms. With Java 9 Modularity Revealed you will learn to make your projects more reliable and scalable than ever using the most important feature in Java 9—The Java Platform Module System, known more commonly as Project Jigsaw. You will learn how to avoid one of the major pain points of Java programming, that of conflicting class names from different modules, or packages. You will learn to create custom run-time images that represent a minimal and more compact JRE containing only those modules that you need. You will further learn to migrate existing Java applications to modular ones using different approaches and tools. The end result is a new ability to plug together different modules without fear of namespace and other conflicts, and you can deploy to everything from small devices to large servers. This book provides code examples and explanations.

What You'll Learn

- Build Java applications using the new modular system introduced in Java 9
- Create your own JRE consisting only of the modules that you require
- Adapt your testing techniques toward modular applications
- Remove your dependencies on other modules
- Enable modules to export only specific

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packages Migrate existing Java applications to modular ones Improve maintainability and performance of Java applications Who This Book Is For Experienced Java programmers wanting to keep up and become informed on the new modularity support in Java 9

Get a grounding in polymorphism and other fundamental aspects of object-oriented program design and implementation, and learn a subset of design patterns that any practicing Java professional simply must know in today's job climate. Java Program Design presents program design principles to help practicing programmers up their game and remain relevant in the face of changing trends and an evolving language. The book enhances the traditional design patterns with Java's new functional programming features, such as functional interfaces and lambda expressions. The result is a fresh treatment of design patterns that expands their power and applicability, and reflects current best practice. The book examines some well-designed classes from the Java class library, using them to illustrate the various object-oriented principles and patterns under discussion. Not only does this approach provide good, practical examples, but you will learn useful library classes you might not otherwise know about. The design of a simplified banking program is introduced in chapter 1 in a non-object-oriented incarnation and the example is

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carried through all chapters. You can see the object orientation develop as various design principles are progressively applied throughout the book to produce a refined, fully object-oriented version of the program in the final chapter. What You'll Learn

- Create well-designed programs, and identify and improve poorly-designed ones
- Build a professional-level understanding of polymorphism and its use in Java interfaces and class hierarchies
- Apply classic design patterns to Java programming problems while respecting the modern features of the Java language
- Take advantage of classes from the Java library to facilitate the implementation of design patterns in your programs

Who This Book Is For Java programmers who are comfortable writing non-object-oriented code and want a guided immersion into the world of object-oriented Java, and intermediate programmers interested in strengthening their foundational knowledge and taking their object-oriented skills to the next level. Even advanced programmers will discover interesting examples and insights in each chapter.

Kick-start your modular programming journey and gear up for the future of Java development About This Book Master design patterns and best practices to build truly modular applications in Java 9 Upgrade your old Java code to Java 9 with ease Build and run a smooth functioning multi-module application. Who This Book Is For This book is written for Java

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developers who are interested in learning and understanding the techniques and best practices to build modular applications in Java. The book assumes some previous programming experience in Java 8 or earlier, familiarity with the basic Java types such as classes and interfaces, as well as experience in compiling and executing Java programs.

What You Will Learn

- Get introduced to the concept of modules and modular programming by working on a fully modular Java application
- Build and configure your own Java 9 modules
- Work with multiple modules and establish inter-module dependencies
- Understand and use the principles of encapsulation, readability, and accessibility
- Use jlink to generate fully loaded custom runtime images like a pro
- Discover the best practices to help you write awesome modules that are a joy to use and maintain
- Upgrade your old Java code to use the new Java 9 module system

In Detail

The Java 9 module system is an important addition to the language that affects the way we design, write, and organize code and libraries in Java. It provides a new way to achieve maintainable code by the encapsulation of Java types, as well as a way to write better libraries that have clear interfaces. Effectively using the module system requires an understanding of how modules work and what the best practices of creating modules are. This book will give you step-by-step instructions to create new modules as well as

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migrate code from earlier versions of Java to the Java 9 module system. You'll be working on a fully modular sample application and add features to it as you learn about Java modules. You'll learn how to create module definitions, setup inter-module dependencies, and use the built-in modules from the modular JDK. You will also learn about module resolution and how to use jlink to generate custom runtime images. We will end our journey by taking a look at the road ahead. You will learn some powerful best practices that will help you as you start building modular applications. You will also learn how to upgrade an existing Java 8 codebase to Java 9, handle issues with libraries, and how to test Java 9 applications. **Style and Approach** The book is a step-by-step guide to understanding Modularity and building a complete application using a modular design.

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

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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

"I'm dancing! By god I'm dancing on the walls. I'm dancing on the ceiling. I'm ecstatic. I'm overjoyed. I'm really, really pleased." –From the Foreword by Robert C. Martin (a.k.a. Uncle Bob) This isn't the first book on Java application architecture. No doubt it won't be the last. But rest assured, this title is different. The way we develop Java applications is about to change, and this title explores the new way of Java application architecture. Over the past several years, module frameworks have been gaining traction on the Java platform, and upcoming versions of Java will include a module system that allows you to leverage the power of modularity to build more resilient and flexible software systems. Modularity isn't a new concept. But modularity will change the way we develop Java applications, and you'll only be able to realize the benefits if you

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understand how to design more modular software systems. Java Application Architecture will help you Design modular software that is extensible, reusable, maintainable, and adaptable Design modular software today, in anticipation of future platform support for modularity Break large software systems into a flexible composite of collaborating modules Understand where to place your architectural focus Migrate large-scale monolithic applications to applications with a modular architecture Articulate the advantages of modular software to your team Java Application Architecture lays the foundation you'll need to incorporate modular design thinking into your development initiatives. Before it walks you through eighteen patterns that will help you architect modular software, it lays a solid foundation that shows you why modularity is a critical weapon in your arsenal of design tools. Throughout, you'll find examples that illustrate the concepts. By designing modular applications today, you are positioning yourself for the platform and architecture of tomorrow. That's why Uncle Bob is dancing.

A Hands-On Guide to Equinox and the OSGi Framework In OSGi and Equinox: Creating Highly Modular Java™ Systems , three leading experts show developers—for the first time—exactly how to make the most of these breakthrough technologies for building highly modular dynamic systems. You'll quickly get started with Eclipse bundle tooling, create

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your first OSGi-based system, and move rapidly to sophisticated production development. Next, you'll master best practices and techniques for creating systems with exceptional modularity and maintainability. You'll learn all about OSGi's Declarative Services and how to use them to solve a wide variety of real-world problems. Finally, you'll see everything that you've learned implemented in a complete case study project that takes you from early prototype through application delivery. For every Eclipse developer, regardless of previous experience, this book Combines a complete hands-on tutorial, online sample code at every step, and deep technical dives for working developers Covers the OSGi programming model, component development, OSGi services, Eclipse bundle tooling, server-side Equinox, and much more Offers knowledge, guidance, and best practices for overcoming the complexities of building modular systems Addresses practical issues ranging from integrating third-party code libraries to server-side programming Includes a comprehensive case study that goes beyond prototyping to deliver a fully refined and refactored production system Whatever your application, industry, or problem domain, if you want to build state-of-the-art software systems with OSGi and Equinox, you will find this book to be an essential resource.

Master Application Development with Java WebSocket Build

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dynamic enterprise Web applications that fully leverage state-of-the-art communication technologies. Written by the leading expert on Java WebSocket programming, this Oracle Press guide offers practical development strategies and detailed example applications. Java WebSocket Programming explains how to design client/server applications, incorporate full-duplex messaging, establish connections, create endpoints, handle path mapping, and secure data. You'll also learn how to encrypt Web transmissions and enrich legacy applications with Java WebSocket. Develop Web applications using the Java WebSocket API Create and publish annotated and programmatic endpoints Manage the lifecycle events of WebSocket endpoints Maintain reliable connections across the endpoint lifecycle Manage synchronous and asynchronous messaging Define encoding and decoding strategies for complex messaging Configure message timeouts, size limits, and exceptions Map message paths and route incoming URIs to Web containers Secure data, authenticate users, and encrypt connections

Continuous delivery adds enormous value to the business and the entire software delivery lifecycle, but adopting this practice means mastering new skills typically outside of a developer's comfort zone. In this practical book, Daniel Bryant and Abraham Marín-Pérez provide guidance to help experienced Java developers master skills such as architectural design, automated quality assurance, and application packaging and deployment on a variety of platforms. Not only will you learn how to create a comprehensive build pipeline for continually delivering effective software, but you'll also explore how Java application architecture and deployment platforms have affected the way we rapidly and safely deliver new software to production environments. Get advice for beginning or completing your migration to continuous delivery Design

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architecture to enable the continuous delivery of Java applications Build application artifacts including fat JARs, virtual machine images, and operating system container (Docker) images Use continuous integration tooling like Jenkins, PMD, and find-sec-bugs to automate code quality checks Create a comprehensive build pipeline and design software to separate the deploy and release processes Explore why functional and system quality attribute testing is vital from development to delivery Learn how to effectively build and test applications locally and observe your system while it runs in production

Quickly find solutions to dozens of common programming problems encountered while building Java applications. Content is presented in the popular problem-solution format. Look up the programming problem that you want to resolve. Read the solution. Apply the solution directly in your own code. Problem solved! This revised edition covers important new features such as Java 9's JShell and the new modularity features enabling you to separate code into independent modules that perform discrete tasks. Also covered are the new garbage collection algorithm and completely revamped process API. Enhanced JSON coverage is provided as well as a new chapter on JavaServer Faces development for web applications. What You'll Learn Develop Java SE applications using the latest in Java SE technology Exploit advanced features like modularity and lambdas Use JShell to quickly develop solutions Build dynamic web applications with JavaScript and Project Nashorn Create great-looking web interfaces with JavaServer Faces Generate graphics and work with media such as sound and video Add internationalization support to your Java applications Who This Book Is For Both beginning Java programmers and advanced Java developers

The upcoming Java 9 module system will affect existing

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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 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

An Accessible Guide to the Java Language and Libraries

Modern Java introduces major enhancements that impact the core Java technologies and APIs at the heart of the Java platform. Many old Java idioms are no longer needed and new features such as modularization make you far more effective. However, navigating these changes can be challenging. Core Java® SE 9 for the Impatient, Second Edition, is a complete yet concise guide that includes all the latest changes up to Java SE 9. Written by Cay S.

Horstmann—author of the classic two-volume Core Java—this indispensable tutorial offers a faster, easier pathway for learning modern Java. Given Java SE 9's size and the scope of its enhancements, there's plenty to cover, but it's presented in small chunks organized for quick access and easy understanding. Horstmann's practical insights and sample code help you quickly take advantage of all that's new, from Java SE 9's long-awaited "Project Jigsaw" module system to the improvements first introduced in Java SE 8, including lambda expressions and streams. Use modules to simplify the development of well-performing complex systems Migrate applications to work with the

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modularized Java API and third-party modules Test code as you create it with the new JShell Read-Eval-Print Loop (REPL) Use lambda expressions to express actions more concisely Streamline and optimize data management with today's Streams API Leverage modern concurrent programming based on cooperating tasks Take advantage of a multitude of API improvements for working with collections, input/output, regular expressions, and processes Whether you're just getting started with modern Java or you're an experienced developer, this guide will help you write tomorrow's most robust, efficient, and secure Java code. Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available.

Use Java 9 and JavaFX 9 to write 3D games for the latest consumer electronics devices. Written by open source gaming expert Wallace Jackson, this book uses Java 9 and NetBeans 9 to add leading-edge features, such as 3D, textures, animation, digital audio, and digital image compositing to your games. Along the way you'll learn about game design, including game design concepts, genres, engines, and UI design techniques. To completely master Java 3D game creation, you will combine this knowledge with a number of JavaFX 9 topics, such as scene graph hierarchy; 3D scene configuration; 3D model design and primitives; model shader creation; and 3D game animation creation. With these skills you will be able to take your 3D Java games to the next level. The final section of Pro Java 9 Games Development puts the final polish on your abilities. You'll see how to add AI logic for random content selection methods; harness a professional scoring engine; and player-proof your event handling. After reading Pro Java 9 Games Development, you will come away with enough 3D expertise to design, develop, and build your own professional Java 9

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games, using JavaFX 9 and the latest new media assets. What You'll Learn Design and build professional 3D Java 9 games, using NetBeans 9, Java 9, and JavaFX 9 Integrate new media assets, such as digital imagery and digital audio Integrate the new JavaFX 9 multimedia engine API Create an interactive 3D board game, modeled, textured, and animated using JavaFX Optimize game assets for distribution, and learn how to use the Java 9 module system Who This Book Is For Experienced Java developers who may have some prior game development experience. This book can be for experienced game developers new to Java programming. 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

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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

Kick-start your modular programming journey and gear up for the future of Java development

About This Book*

- Master design patterns and best practices to build truly modular applications in Java 9*
- Upgrade your old Java code to Java 9 with ease*
- Build and run a smooth functioning multi-module application.

Who This Book Is For

This book is written for Java developers who are interested in learning and understanding the techniques and best practices to build modular applications in Java. The book assumes some previous programming experience in Java 8 or earlier, familiarity with the basic Java types such as classes and interfaces, as well as experience in compiling and executing Java programs.

What You Will Learn*

- Get introduced to the concept of modules and modular programming by working on a fully modular Java application*
- Build and configure your own Java 9 modules*
- Work with multiple modules and establish inter-module dependencies*
- Understand and use the principles of encapsulation, readability, and accessibility*
- Use jlink to generate fully loaded custom runtime images like a pro*

Discover the best practices to help you write awesome

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modules that are a joy to use and maintain* Upgrade your old Java code to use the new Java 9 module systemIn DetailThe Java 9 module system is an important addition to the language that affects the way we design, write, and organize code and libraries in Java. It provides a new way to achieve maintainable code by the encapsulation of Java types, as well as a way to write better libraries that have clear interfaces.

Effectively using the module system requires an understanding of how modules work and what the best practices of creating modules are. This book will give you step-by-step instructions to create new modules as well as migrate code from earlier versions of Java to the Java 9 module system. You'll be working on a fully modular sample application and add features to it as you learn about Java modules. You'll learn how to create module definitions, setup inter-module dependencies, and use the built-in modules from the modular JDK. You will also learn about module resolution and how to use `jlink` to generate custom runtime images. We will end our journey by taking a look at the road ahead. You will learn some powerful best practices that will help you as you start building modular applications. You will also learn how to upgrade an existing Java 8 codebase to Java 9, handle issues with libraries, and how to test Java 9 applications. **Style and Approach** The book is a step-by-step guide to understanding Modularity and building a complete application using a modular design.

The professional programmer's Deitel® guide to Java® 9 and the powerful Java platform Written for programmers with a background in another high-level language, this book applies the Deitel signature live-code approach to teaching programming and explores the Java® 9 language and APIs in depth. The book presents concepts in fully tested programs, complete with code walkthroughs, syntax shading, code highlighting and program outputs. It features hundreds of

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complete Java 9 programs with thousands of lines of proven code, and hundreds of software-development tips that will help you build robust applications. Start with an introduction to Java using an early classes and objects approach, then rapidly move on to more advanced topics, including JavaFX GUI, graphics, animation and video, exception handling, lambdas, streams, functional interfaces, object serialization, concurrency, generics, generic collections, database with JDBC™ and JPA, and compelling new Java 9 features, such as the Java Platform Module System, interactive Java with JShell (for discovery, experimentation and rapid prototyping) and more. You'll enjoy the Deitels' classic treatment of object-oriented programming and the object-oriented design ATM case study, including a complete Java implementation. When you're finished, you'll have everything you need to build industrial-strength, object-oriented Java 9 applications.

New Java® 9 Features
Java® 9's Platform Module System
Interactive Java via JShell—Java 9's REPL
Collection Factory
Methods, Matcher Methods, Stream Methods, JavaFX Updates, Using Modules in JShell, Completable Future Updates, Security Enhancements, Private Interface Methods and many other language and API updates. Core Java Features
Classes, Objects, Encapsulation, Inheritance, Polymorphism, Interfaces
Composition vs. Inheritance, "Programming to an Interface not an Implementation"
Lambdas, Sequential and Parallel Streams, Functional Interfaces with Default and Static Methods, Immutability
JavaFX GUI, 2D and 3D Graphics, Animation, Video, CSS, Scene Builder Files, I/O Streams, XML Serialization
Concurrency for Optimal Multi-Core Performance, JavaFX Concurrency APIs
Generics and Generic Collections
Recursion, Database (JDBC™ and JPA) Keep in Touch
Contact the authors at: deitel@deitel.com Join the Deitel social media communities
LinkedIn® at bit.ly/DeitelLinkedIn

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Subscribe to the Deitel® Buzz e-mail newsletter at www.deitel.com/newsletter/subscribe.html For source code and updates, visit: www.deitel.com/books/Java9FP
What is OSGi? Simply put, OSGi is a standardized technology that allows developers to create the highly modular Java applications that are required for enterprise development. OSGi lets you install, start, stop, update, or uninstall components without taking down your entire system. The interest in OSGi based applications has exploded since major vendors like Sun, Spring, Oracle, BEA, and IBM have gotten behind the standard. OSGi in Action is a comprehensive guide to OSGi with two primary goals. First, it provides a clear introduction to OSGi concepts with examples that are relevant both for architects and developers. Then, it explores numerous practical scenarios and techniques, answering questions like: How much of OSGi do you actually need? How do you embed OSGi inside other containers? What are the best practices for moving legacy systems to OSGi? Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

Summary Java's much-awaited "Project Jigsaw" is finally here! Java 11 includes a built-in modularity framework, and The Java Module System is your guide to discovering it. In this new book, you'll learn how the module system improves reliability and maintainability, and how it can be used to reduce tight coupling of system components. Foreword by Kevlin Henney. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. You'll find registration instructions inside the print book. About the Technology Packaging code into neat, well-defined units makes it easier to deliver safe and reliable

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applications. The Java Platform Module System is a language standard for creating these units. With modules, you can closely control how JARs interact and easily identify any missing dependencies at startup. This shift in design is so fundamental that starting with Java 9, all core Java APIs are distributed as modules, and libraries, frameworks, and applications will benefit from doing the same. About the Book The Java Module System is your in-depth guide to creating and using Java modules. With detailed examples and easy-to-understand diagrams, you'll learn the anatomy of a modular Java application. Along the way, you'll master best practices for designing with modules, debugging your modular app, and deploying to production. What's inside The anatomy of a modular Java app Building modules from source to JAR Migrating to modular Java Decoupling dependencies and refining APIs Handling reflection and versioning Customizing runtime images Updated for Java 11 About the Reader Perfect for developers with some Java experience. About the Author Nicolai Parlog is a developer, author, speaker, and trainer. His home is codefx.org. Table of Contents PART 1 - Hello, modules First piece of the puzzle Anatomy of a modular application Defining modules and their properties Building modules from source to JAR Running and debugging modular applications PART 2 - Adapting real-world projects Compatibility challenges when moving to Java 9 or later Recurring challenges when running on Java 9 or later Incremental modularization of existing projects Migration and modularization strategies PART 3 - Advanced module system features Using services to decouple modules Refining dependencies and APIs Reflection in a modular world Module versions: What's possible and what's not Customizing runtime images with jlink Putting the pieces together Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as

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scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures

In the past few years, going cloud native has been a big advantage for many companies. But it's a tough technique to get right, especially for enterprises with critical legacy systems. This practical hands-on guide examines effective architecture, design, and cultural patterns to help you transform your organization into a cloud native enterprise—whether you're moving from older architectures or creating new systems from scratch. By following Wealth Grid, a fictional company, you'll understand the challenges, dilemmas, and considerations that accompany a move to the cloud. Technical managers and architects will learn best practices for taking on a successful company-wide transformation. Cloud migration consultants Pini Reznik,

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Jamie Dobson, and Michelle Gienow draw patterns from the growing community of expert practitioners and enterprises that have successfully built cloud native systems. You'll learn what works and what doesn't when adopting cloud native—including how this transition affects not just your technology but also your organizational structure and processes. You'll learn: What cloud native means and why enterprises are so interested in it Common barriers and pitfalls that have affected other companies (and how to avoid them) Context-specific patterns for a successful cloud native transformation How to implement a safe, evolutionary cloud native approach How companies addressed root causes and misunderstandings that hindered their progress Case studies from real-world companies that have succeeded with cloud native transformations

Master the art of implementing scalable microservices in your production environment with ease About This Book Use domain-driven design to build microservices Use Spring Cloud to use Service Discovery and Registration Use Kafka, Avro and Spring Streams for implementing event based microservices Who This Book Is For This book is for Java developers who are familiar with the microservices architecture and now wants to take a deeper dive into effectively implementing microservices at an enterprise level. A reasonable knowledge level and understanding of core microservice elements and applications is expected. What You Will Learn Use domain-driven design to design and implement microservices Secure microservices using Spring Security Learn to develop REST service development Deploy and test microservices Troubleshoot and debug the issues faced during development Learning best practices and common principals about microservices In Detail Microservices are the next big thing in designing scalable, easy-to-maintain applications. It not only makes app

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development easier, but also offers great flexibility to utilize various resources optimally. If you want to build an enterprise-ready implementation of the microservices architecture, then this is the book for you! Starting off by understanding the core concepts and framework, you will then focus on the high-level design of large software projects. You will gradually move on to setting up the development environment and configuring it before implementing continuous integration to deploy your microservice architecture. Using Spring security, you will secure microservices and test them effectively using REST Java clients and other tools like RxJava 2.0. We'll show you the best patterns, practices and common principals of microservice design and you'll learn to troubleshoot and debug the issues faced during development. We'll show you how to design and implement reactive microservices. Finally, we'll show you how to migrate a monolithic application to microservices based application. By the end of the book, you will know how to build smaller, lighter, and faster services that can be implemented easily in a production environment. Style and approach This book starts from the basics, including environment setup and provides easy-to-follow steps to implement the sample project using microservices.

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