

Clean Architecture A Craftsmans Guide To Software Structure And Design Robert C Martin Series

The Robert C. Martin Clean Code Collection consists of two bestselling eBooks: Clean Code: A Handbook of Agile Software Craftmanship The Clean Coder: A Code of Conduct for Professional Programmers In Clean Code, legendary software expert Robert C. Martin has teamed up with his colleagues from Object Mentor to distill their best agile practice of cleaning code “on the fly” into a book that will instill within you the values of a software craftsman and make you a better programmer--but only if you work at it. You will be challenged to think about what’s right about that code and what’s wrong with it. More important, you will be challenged to reassess your professional values and your commitment to your craft. In The Clean Coder, Martin introduces the disciplines, techniques, tools, and practices of true software craftsmanship. This book is packed with practical advice--about everything from estimating and coding to refactoring and testing. It covers much more than technique: It is about attitude. Martin shows how to approach software development with honor, self-respect, and pride; work well and work clean; communicate and estimate faithfully; face difficult decisions with clarity and honesty; and understand that deep knowledge comes with a responsibility to act. Readers of this collection will come away understanding How to tell the difference between good and bad code How to write good code and how to transform bad code into good code How to create good names, good functions, good objects, and good classes How to format code for maximum readability How to implement complete error handling without obscuring code logic How to unit test and practice test-driven development What it means to behave as a true software craftsman How to deal with conflict, tight schedules, and unreasonable managers How to get into the flow of coding and get past writer’s block How to handle unrelenting pressure and avoid burnout How to combine enduring attitudes with new development paradigms How to manage your time and avoid blind alleys, marshes, bogs, and swamps How to foster environments where programmers and teams can thrive When to say “No”--and how to say it When to say “Yes”--and what yes really means

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

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book also includes a catalog of twenty-four dependency-breaking techniques that help you work with program elements in isolation and make safer changes.

Get the most out of JavaScript for building web applications through a series of patterns, techniques, and case studies for clean coding

Key Features Write maintainable JS code using internal abstraction, well-written tests, and well-documented code Understand the agents of clean coding like SOLID principles, OOP, and functional programming Explore solutions to tackle common JavaScript challenges in building UIs, managing APIs, and writing states

Book Description Building robust apps starts with creating clean code. In this book, you'll explore techniques for doing this by learning everything from the basics of JavaScript through to the practices of clean code. You'll write functional, intuitive, and maintainable code while also understanding how your code affects the end user and the wider community. The book starts with popular clean-coding principles such as SOLID, and the Law of Demeter (LoD), along with highlighting the enemies of writing clean code such as cargo culting and over-management. You'll then delve into JavaScript, understanding the more complex aspects of the language. Next, you'll create meaningful abstractions using design patterns, such as the Class Pattern and the Revealing Module Pattern. You'll explore real-world challenges such as DOM reconciliation, state management, dependency management, and security, both within browser and server environments. Later, you'll cover tooling and testing methodologies and the importance of documenting code. Finally, the book will focus on advocacy and good communication for improving code cleanliness within teams or workplaces, along with covering a case study for clean coding. By the end of this book, you'll be well-versed with JavaScript and have learned how to create clean abstractions, test them, and communicate about them via documentation. What you will learn

Understand the true purpose of code and the problems it solves for your end-users and colleagues Discover the tenets and enemies of clean code considering the effects of cultural and syntactic conventions Use modern JavaScript syntax and design patterns to craft intuitive abstractions Maintain code quality within your team via wise adoption of tooling and advocating best practices Learn the modern ecosystem of JavaScript and its challenges like DOM reconciliation and state management Express the behavior of your code both within tests and via various forms of documentation

Who this book is for This book is for anyone who writes JavaScript, professionally or otherwise. As this book does not relate specifically to any particular framework or environment, no prior experience of any JavaScript web framework is required. Some knowledge of programming is assumed to understand the concepts covered in the book more effectively.

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.

Managing Humans is a selection of the best essays from Michael Lopp's popular website Rands in Repose(www.randsinrepose.com). Lopp is one of the most sought-after IT managers in Silicon Valley, and draws on his experiences at Apple, Netscape, Symantec, and Borland. This book reveals a variety of different approaches for creating innovative, happy development teams. It covers handling conflict, managing wildly differing personality types, infusing innovation into insane product schedules, and figuring out how to build lasting and useful engineering culture. The essays are biting,

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hilarious, and always informative.

When you have questions about C# 8.0 or .NET Core, this best-selling guide has the answers you need. C# is a language of unusual flexibility and breadth, but with its continual growth there's so much more to learn. In the tradition of the O'Reilly Nutshell guides, this thoroughly updated edition is simply the best one-volume reference to the C# language available today. Organized around concepts and use cases, C# 8.0 in a Nutshell provides intermediate and advanced programmers with a concise map of C# and .NET knowledge that also plumbs significant depths. Get up to speed on C#, from syntax and variables to advanced topics such as pointers, closures, and patterns Dig deep into LINQ with three chapters dedicated to the topic Explore concurrency and asynchrony, advanced threading, and parallel programming Work with .NET features, including regular expressions, networking, serialization, spans, reflection, and cryptography Delve into Roslyn, the modular C# compiler as a service

How do you detangle a monolithic system and migrate it to a microservice architecture? How do you do it while maintaining business-as-usual? As a companion to Sam Newman's extremely popular Building Microservices, this new book details a proven method for transitioning an existing monolithic system to a microservice architecture. With many illustrative examples, insightful migration patterns, and a bevy of practical advice to transition your monolith enterprise into a microservice operation, this practical guide covers multiple scenarios and strategies for a successful migration, from initial planning all the way through application and database decomposition. You'll learn several tried and tested patterns and techniques that you can use as you migrate your existing architecture. Ideal for organizations looking to transition to microservices, rather than rebuild Helps companies determine whether to migrate, when to migrate, and where to begin Addresses communication, integration, and the migration of legacy systems Discusses multiple migration patterns and where they apply Provides database migration examples, along with synchronization strategies Explores application decomposition, including several architectural refactoring patterns Delves into details of database decomposition, including the impact of breaking referential and transactional integrity, new failure modes, and more

Widely considered one of the best practical guides to programming, Steve McConnell's original CODE COMPLETE has been helping developers write better software for more than a decade. Now this classic book has been fully updated and revised with leading-edge practices—and hundreds of new code samples—illustrating the art and science of software construction. Capturing the body of knowledge available from research, academia, and everyday commercial practice, McConnell synthesizes the most effective techniques and must-know principles into clear, pragmatic guidance. No matter what your experience level, development environment, or project size, this book will inform and stimulate your thinking—and help you build the highest quality code. Discover the timeless techniques and strategies that help you: Design for minimum complexity and maximum creativity Reap the benefits of collaborative development Apply defensive programming techniques to reduce and flush out errors Exploit opportunities to refactor—or evolve—code, and do it safely Use construction practices that are right-weight for your project Debug problems quickly and effectively Resolve critical construction issues early and correctly Build quality into the beginning, middle, and end of your project

Software Systems Architecture is a practitioner-oriented guide to designing and implementing effective architectures for information systems. It is both a readily accessible introduction to

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software architecture and an invaluable handbook of well-established best practices. It shows why the role of the architect is central to any successful information-systems development project, and, by presenting a set of architectural viewpoints and perspectives, provides specific direction for improving your own and your organization's approach to software systems architecture. With this book you will learn how to Design an architecture that reflects and balances the different needs of its stakeholders Communicate the architecture to stakeholders and demonstrate that it has met their requirements Focus on architecturally significant aspects of design, including frequently overlooked areas such as performance, resilience, and location Use scenarios and patterns to drive the creation and validation of your architecture Document your architecture as a set of related views Use perspectives to ensure that your architecture exhibits important qualities such as performance, scalability, and security The architectural viewpoints and perspectives presented in the book also provide a valuable long-term reference source for new and experienced architects alike. Whether you are an aspiring or practicing software architect, you will find yourself referring repeatedly to the practical advice in this book throughout the lifecycle of your projects. A supporting Web site containing further information can be found at www.viewpoints-and-perspectives.info

While many companies ponder implementation details such as distributed processing engines and algorithms for data analysis, this practical book takes a much wider view of big data development, starting with initial planning and moving diligently toward execution. Authors Ted Malaska and Jonathan Seidman guide you through the major components necessary to start, architect, and develop successful big data projects. Everyone from CIOs and COOs to lead architects and developers will explore a variety of big data architectures and applications, from massive data pipelines to web-scale applications. Each chapter addresses a piece of the software development life cycle and identifies patterns to maximize long-term success throughout the life of your project. Start the planning process by considering the key data project types Use guidelines to evaluate and select data management solutions Reduce risk related to technology, your team, and vague requirements Explore system interface design using APIs, REST, and pub/sub systems Choose the right distributed storage system for your big data system Plan and implement metadata collections for your data architecture Use data pipelines to ensure data integrity from source to final storage Evaluate the attributes of various engines for processing the data you collect

Software Expert Kent Beck Presents a Catalog of Patterns Infinitely Useful for Everyday Programming Great code doesn't just function: it clearly and consistently communicates your intentions, allowing other programmers to understand your code, rely on it, and modify it with confidence. But great code doesn't just happen. It is the outcome of hundreds of small but critical decisions programmers make every single day. Now, legendary software innovator Kent Beck—known worldwide for creating Extreme Programming and pioneering software patterns and test-driven development—focuses on these critical decisions, unearthing powerful “implementation patterns” for writing programs that are simpler, clearer, better organized, and more cost effective. Beck collects 77 patterns for handling everyday programming tasks and writing more readable code. This new collection of patterns addresses many aspects of development, including class, state, behavior, method, collections, frameworks, and more. He uses diagrams, stories, examples, and essays to engage the reader as he illuminates the patterns. You'll find proven solutions for handling everything from naming variables to checking exceptions.

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

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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 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.

The latest title in Addison Wesley's world-renowned Robert C. Martin Series on better software development, Code That Fits in Your Head offers indispensable practical advice for writing code at a sustainable pace, and controlling the complexity that causes too many software projects to spin out of control. Reflecting decades of experience consulting on software projects and helping development teams succeed, Mark Seemann shares proven practices and heuristics, supported by realistic advice. His guidance ranges from checklists to teamwork, encapsulation to decomposition, API design to unit testing and troubleshooting. Throughout, Seemann illuminates his insights with up-to-date code examples drawn from a start to finish sample project. Seemann's examples are written in C#, and designed to be clear and useful to every object-oriented enterprise developer, whether they use C#, Java, or another language. Code That Fits in Your Head is accompanied by the complete code base for this sample application, organized in a Git repository to facilitate further exploration of details that don't fit in the text.

This is a practical guide for software developers, and different than other software architecture books. Here's why: It teaches risk-driven architecting. There is no need for meticulous designs when risks are small, nor any excuse for sloppy designs when risks threaten your success. This book describes a way to do just enough architecture. It avoids the one-size-fits-all process tar pit with advice on how to tune your design effort based on the risks you face. It democratizes architecture. This book seeks to make architecture relevant to all software developers. Developers need to understand how to use constraints as guiderails that ensure desired outcomes, and how seemingly small changes can affect a system's properties. It cultivates declarative knowledge. There is a difference between being able to hit a ball and knowing why you are able to hit it, what psychologists refer to as procedural knowledge versus declarative knowledge. This book will make you more aware of what you have been doing and provide names for the concepts. It emphasizes the engineering. This book focuses on the technical parts of software development and what developers do to ensure the system works not job titles or processes. It shows you how to build models and analyze architectures so that you can make principled design tradeoffs. It describes the techniques software designers use to reason about medium to large sized problems and points out where you can learn specialized techniques in more detail. It provides practical advice. Software design decisions influence the architecture and vice versa. The approach in this book embraces drill-down/pop-up behavior by describing models that have various levels of abstraction, from architecture to data structure design.

Practical Software Architecture Solutions from the Legendary Robert C. Martin ("Uncle Bob") By applying universal rules of software architecture, you can dramatically improve developer productivity throughout the life of any software system. Now, building upon the success of his best-selling books Clean Code and The Clean Coder, legendary software craftsman Robert C.

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Martin (“Uncle Bob”) reveals those rules and helps you apply them. Martin’s Clean Architecture doesn’t merely present options. Drawing on over a half-century of experience in software environments of every imaginable type, Martin tells you what choices to make and why they are critical to your success. As you’ve come to expect from Uncle Bob, this book is packed with direct, no-nonsense solutions for the real challenges you’ll face—the ones that will make or break your projects. Learn what software architects need to achieve—and core disciplines and practices for achieving it Master essential software design principles for addressing function, component separation, and data management See how programming paradigms impose discipline by restricting what developers can do Understand what’s critically important and what’s merely a “detail” Implement optimal, high-level structures for web, database, thick-client, console, and embedded applications Define appropriate boundaries and layers, and organize components and services See why designs and architectures go wrong, and how to prevent (or fix) these failures Clean Architecture is essential reading for every current or aspiring software architect, systems analyst, system designer, and software manager—and for every programmer who must execute someone else’s designs. Register your product for convenient access to downloads, updates, and/or corrections as they become available.

Python is currently used in many different areas. In all of these areas, experienced professionals can find examples of inefficiency, problems, and other perils, as a result of bad code. After reading this book, readers will understand these problems, and more importantly, understand how to correct them.

“As an author, editor, and publisher, I never paid much attention to the competition—except in a few cases. This is one of those cases. The UNIX System Administration Handbook is one of the few books we ever measured ourselves against.” —Tim O’Reilly, founder of O’Reilly Media “This edition is for those whose systems live in the cloud or in virtualized data centers; those whose administrative work largely takes the form of automation and configuration source code; those who collaborate closely with developers, network engineers, compliance officers, and all the other worker bees who inhabit the modern hive.” —Paul Vixie, Internet Hall of Fame-recognized innovator and founder of ISC and Farsight Security “This book is fun and functional as a desktop reference. If you use UNIX and Linux systems, you need this book in your short-reach library. It covers a bit of the systems’ history but doesn’t bloviate. It’s just straight-forward information delivered in a colorful and memorable fashion.” —Jason A. Nunnelley UNIX® and Linux® System Administration Handbook, Fifth Edition, is today’s definitive guide to installing, configuring, and maintaining any UNIX or Linux system, including systems that supply core Internet and cloud infrastructure. Updated for new distributions and cloud environments, this comprehensive guide covers best practices for every facet of system administration, including storage management, network design and administration, security, web hosting, automation, configuration management, performance analysis, virtualization, DNS, security, and the management of IT service organizations. The authors—world-class, hands-on technologists—offer indispensable new coverage of cloud platforms, the DevOps philosophy, continuous deployment, containerization, monitoring, and many other essential topics. Whatever your role in running systems and networks built on UNIX or Linux, this conversational, well-written guide will improve your efficiency and help solve your knottiest problems.

The software development ecosystem is constantly changing, providing a constant

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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.

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 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

Presents practical advice on the disciplines, techniques, tools, and practices of computer programming and how to approach software development with a sense of pride, honor, and self-respect.

Designing Software Architectures will teach you how to design any software architecture in a systematic, predictable, repeatable, and cost-effective way. This book introduces a practical methodology for architecture design that any professional software engineer can use, provides structured methods supported by reusable chunks of design knowledge, and includes rich case studies that demonstrate how to use the methods. Using realistic examples, you'll master the powerful new version of the proven Attribute-Driven Design (ADD) 3.0 method and will learn how to use it to address key drivers, including quality attributes, such as modifiability, usability, and availability, along with functional requirements and architectural concerns. Drawing on their extensive experience, Humberto Cervantes and Rick Kazman guide you through crafting practical designs that support the full software life cycle, from requirements to maintenance and evolution. You'll learn how to successfully integrate design in your

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organizational context, and how to design systems that will be built with agile methods. Comprehensive coverage includes Understanding what architecture design involves, and where it fits in the full software development life cycle Mastering core design concepts, principles, and processes Understanding how to perform the steps of the ADD method Scaling design and analysis up or down, including design for pre-sale processes or lightweight architecture reviews Recognizing and optimizing critical relationships between analysis and design Utilizing proven, reusable design primitives and adapting them to specific problems and contexts Solving design problems in new domains, such as cloud, mobile, or big data

The Unified Modeling Language has become the industry standard for the expression of software designs. The Java programming language continues to grow in popularity as the language of choice for the serious application developer. Using UML and Java together would appear to be a natural marriage, one that can produce considerable benefit. However, there are nuances that the seasoned developer needs to keep in mind when using UML and Java together. Software expert Robert Martin presents a concise guide, with numerous examples, that will help the programmer leverage the power of both development concepts. The author ignores features of UML that do not apply to java programmers, saving the reader time and effort. He provides direct guidance and points the reader to real-world usage scenarios. The overall practical approach of this book brings key information related to Java to the many presentations. The result is an highly practical guide to using the UML with Java.

There are many programmers. Real software architects, on the other hand, are rare and, therefore, particularly popular in the market. The Clean Software Architect book is the perfect introduction to this new level of programming. Leading companies and employers are always looking for clean software architects to generate a clearly high-quality code. After all, it is easily expandable, which increases productivity in the long term, shortens development time, and ensures perfect quality. The Beginners Guide To Clean Architecture is, therefore, a primary knowledge-intensive book to learn about the clean software architect. After a quick theoretical introduction, the book switches directly to practical applications. We specifically look at important object-oriented design concepts and principles. In this book, you will learn: How to become a good software architect from a new programmer. Learn to model with UML diagrams. Learn and use SOLID principle. Recognize code segments that violate SOLID principles and improve them if necessary. Learn component design principles. Recognize modules that violate component design principles and adapt them if necessary. Learn basic, object-oriented design principles and put them into practice. Learn the design patterns most commonly used in practice and use them in existing or new software projects. Object-oriented software architecture learn and use principles. A better understanding of the good design and best practice for design. Design of clean and flexible software architecture. Facilitate familiarization time for new employees thanks to clean architecture. Increase productivity with easily expandable architecture. As you explore the book, you'll learn about clean, high-quality code. This book focuses on lessons based on the SOLID principles and their interactions. Basic questions, such as which classes belong in the same module? How do the modules interact with each other? Where are the boundaries between the modules? And what are the interfaces between the individual modules? This book is for new and junior software developers and

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programmers with basic programming knowledge. So go ahead and hop right in! Now is your chance to develop your skills and set yourself apart from the others.

A Comprehensive Process for Defining Software Architectures That Work A good software architecture is the foundation of any successful software system. Effective architecting requires a clear understanding of organizational roles, artifacts, activities performed, and the optimal sequence for performing those activities. With *The Process of Software Architecting*, Peter Eeles and Peter Cripps provide guidance on these challenges by covering all aspects of architecting a software system, introducing best-practice techniques that apply in every environment, whether based on Java EE, Microsoft .NET, or other technologies. Eeles and Cripps first illuminate concepts related to software architecture, including architecture documentation and reusable assets. Next, they present an accessible, task-focused guided tour through a typical project, focusing on the architect's role, with common issues illuminated and addressed throughout. Finally, they conclude with a set of best practices that can be applied to today's most complex systems. You will come away from this book understanding the role of the architect in a typical software development project, how to document a software architecture to satisfy the needs of different stakeholders, the applicability of reusable assets in the process of architecting, the role of the architect with respect to requirements definition, the derivation of an architecture based on a set of requirements, and the relevance of architecting in creating complex systems. *The Process of Software Architecting* will be an indispensable resource for every working and aspiring software architect—and for every project manager and other software professional who needs to understand how architecture influences their work.

Getting Architecture Just Right: Detailed Practical Guidance for Architecting Any Real-World IT Project To build effective architectures, software architects must tread a fine line between precision and ambiguity (a.k.a. big animal pictures). This is difficult but crucial: Failure to achieve this balance often leads directly to poor systems design and implementation. Now, pioneering IBM Distinguished Engineer and Chief Technology Officer Tilak Mitra offers the first complete guide to developing end-to-end solution architectures that are “just enough”—identifying and capturing the most important artifacts, without over-engineering or excessive documentation, and providing a practical approach to consistent and repeated success in defining software architectures. *Practical Software Architecture* provides detailed prescriptive and pragmatic guidance for architecting any real-world IT project, regardless of system, methodology, or environment. Mitra specifically identifies the artifacts that require emphasis and shows how to communicate evolving solutions with stakeholders, bridging the gap between architecture and implementation.

Gain insight into how hexagonal architecture can help to keep the cost of development low over the complete lifetime of an application **Key Features** Explore ways to make your software flexible, extensible, and adaptable Learn new concepts that you can easily blend with your own software development style Develop the mindset of building maintainable solutions instead of taking shortcuts **Book Description** We would all like to build software architecture that yields adaptable and flexible software with low development costs. But, unreasonable deadlines and shortcuts make it very hard to create such an architecture. *Get Your Hands Dirty on Clean Architecture* starts with a discussion about the conventional layered architecture style and its disadvantages. It also talks about the advantages of the domain-centric architecture styles of Robert C. Martin's *Clean Architecture* and Alistair Cockburn's *Hexagonal Architecture*. Then, the book dives into hands-on chapters that show you how to manifest a hexagonal architecture in actual code. You'll learn in detail about different mapping strategies between the layers of a hexagonal architecture and see how to assemble the architecture elements into an application. The later chapters demonstrate how to enforce architecture boundaries. You'll also learn what shortcuts produce what types of technical debt and how, sometimes, it is a good idea to willingly take on those debts. After reading this book, you'll have all the knowledge you need to

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create applications using the hexagonal architecture style of web development. What you will learn Identify potential shortcomings of using a layered architecture Apply methods to enforce architecture boundaries Find out how potential shortcuts can affect the software architecture Produce arguments for when to use which style of architecture Structure your code according to the architecture Apply various types of tests that will cover each element of the architecture Who this book is for This book is for you if you care about the architecture of the software you are building. To get the most out of this book, you must have some experience with web development. The code examples in this book are in Java. If you are not a Java programmer but can read object-oriented code in other languages, you will be fine. In the few places where Java or framework specifics are needed, they are thoroughly explained.

As Python continues to grow in popularity, projects are becoming larger and more complex. Many Python developers are now taking an interest in high-level software design patterns such as hexagonal/clean architecture, event-driven architecture, and the strategic patterns prescribed by domain-driven design (DDD). But translating those patterns into Python isn't always straightforward. With this hands-on guide, Harry Percival and Bob Gregory from MADE.com introduce proven architectural design patterns to help Python developers manage application complexity—and get the most value out of their test suites. Each pattern is illustrated with concrete examples in beautiful, idiomatic Python, avoiding some of the verbosity of Java and C# syntax. Patterns include: Dependency inversion and its links to ports and adapters (hexagonal/clean architecture) Domain-driven design's distinction between entities, value objects, and aggregates Repository and Unit of Work patterns for persistent storage Events, commands, and the message bus Command-query responsibility segregation (CQRS) Event-driven architecture and reactive microservices

Radically improve your testing practice and software quality with new testing styles, good patterns, and reliable automation. Key Features A practical and results-driven approach to unit testing Refine your existing unit tests by implementing modern best practices Learn the four pillars of a good unit test Safely automate your testing process to save time and money Spot which tests need refactoring, and which need to be deleted entirely Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About The Book Great testing practices maximize your project quality and delivery speed by identifying bad code early in the development process. Wrong tests will break your code, multiply bugs, and increase time and costs. You owe it to yourself—and your projects—to learn how to do excellent unit testing. Unit Testing Principles, Patterns and Practices teaches you to design and write tests that target key areas of your code including the domain model. In this clearly written guide, you learn to develop professional-quality tests and test suites and integrate testing throughout the application life cycle. As you adopt a testing mindset, you'll be amazed at how better tests cause you to write better code. What You Will Learn Universal guidelines to assess any unit test Testing to identify and avoid anti-patterns Refactoring tests along with the production code Using integration tests to verify the whole system This Book Is Written For For readers who know the basics of unit testing. Examples are written in C# and can easily be applied to any language. About the Author Vladimir Khorikov is an author, blogger, and Microsoft MVP. He has mentored numerous teams on the ins and outs of unit testing. Table of Contents: PART 1 THE BIGGER PICTURE 1 | The goal of unit testing 2 | What is a unit test? 3 | The anatomy of a unit test PART 2 MAKING YOUR TESTS WORK FOR YOU 4 | The four pillars of a good unit test 5 | Mocks and test fragility 6 | Styles of unit testing 7 | Refactoring toward valuable unit tests PART 3 INTEGRATION TESTING 8 | Why integration testing? 9 | Mocking best practices 10 | Testing the database PART 4 UNIT TESTING ANTI-PATTERNS 11 | Unit testing anti-patterns

More C++ Gems picks up where the first book left off, presenting tips, tricks, proven strategies, easy-to-follow techniques, and usable source code.

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This book explores in detail everything there is to know about building Clean Software Architecture. Usually, when we talk about Software Architecture, what comes to mind is a good working system. We concentrate more on the function of the software than the structure. The structure of the system is treated as an inconsequential part of the software development process. In relation to this, business managers and stakeholders believe that clean software is working software. The truth is that a system works well does not mean it is a clean one. In this book, Software Architecture is explored from its two most significant qualities: structure and behavior. The structure of the software plays an important role in software development; it determines the behavior of the software. The structure covers modules, functions, classes, services, and boundaries and encompasses the system itself. But most times, developers often make the mistake of concentrating more on the behavior of the system while the structure comes last. This action has contributed to most of the problems we have in software development today. This book explains why the structure of the software should come before the behavior. It provides a step by step guide to creating flexible software that will be susceptible to change when the need be. It looks at the various principles guiding software design. These principles range from dependencies, component coupling, component cohesion, to the classes of elements contained in a software and how these elements can be separated from each other. The principles serve as a guideline to creating clean software. Explanation of the difference between a working Architecture and a Clean Architecture is given. Clean Software runs smoothly and has a longer lifespan than working software. The book guides programmers on the foundation and the building blocks to creating Clean Software. Also, developers are guided on how to make their system obey the rules of testability. Clean Software is testable software.

Test-Driven Development (TDD) is at the heart of low-defect agile software development, enabling incremental development and emergent design without degrading quality. By allowing software teams to create comprehensive regression tests that immediately pinpoint tiny errors, it gives them confidence to enhance functionality with incredible speed. Essential Test-Driven Development will help you discover how TDD helps developers take back the joy of software development, as you glimpse of the future of TDD and software development as a profession. Leading TDD coach and instructor Rob Myers shares his experiences, suggestions, and stories, plus focused and fun self-directed Java, C#, C++, and JavaScript lab work from his acclaimed TDD course. Throughout, this guide reflects the author's unsurpassed experience practicing TDD on real production code and helping hundreds of teams adopt TDD practices. Myers addresses both human motivations and technical challenges, and stresses benefits to individual programmers, not just companies. He also offers exceptional coverage of massive refactoring and legacy code, reflecting the actual realities most developers face."

In Clean Craftsmanship , the legendary Robert C. Martin ("Uncle Bob") has written every programmer's definitive guide to working well. Martin brings together the disciplines, standards, and ethics you need to deliver robust, effective code quickly and productively, and be proud of all the software you write -- every single day. Martin, the best-selling author of The Clean Coder , begins with a pragmatic, technical, and prescriptive guide to five foundational disciplines of software craftsmanship: test-driven development, refactoring, simple design, collaborative programming (pairing), and acceptance tests. Next, he moves up to standards -- outlining the baseline expectations the world has of software developers, illuminating how those often differ from their own perspectives, and helping you repair the mismatch. Finally, he turns to the ethics of the programming profession, describing ten fundamental promises all software developers should make to their colleagues, their users, and above all, themselves . With Martin's guidance and advice, you can consistently write code that builds trust instead of

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undermining it -- trust among your users and throughout a society that depends on software for its very survival.

Right Your Software and Transform Your Career Righting Software presents the proven, structured, and highly engineered approach to software design that renowned architect Juval Löwy has practiced and taught around the world. Although companies of every kind have successfully implemented his original design ideas across hundreds of systems, these insights have never before appeared in print. Based on first principles in software engineering and a comprehensive set of matching tools and techniques, Löwy's methodology integrates system design and project design. First, he describes the primary area where many software architects fail and shows how to decompose a system into smaller building blocks or services, based on volatility. Next, he shows how to flow an effective project design from the system design; how to accurately calculate the project duration, cost, and risk; and how to devise multiple execution options. The method and principles in Righting Software apply regardless of your project and company size, technology, platform, or industry. Löwy starts the reader on a journey that addresses the critical challenges of software development today by righting software systems and projects as well as careers—and possibly the software industry as a whole. Software professionals, architects, project leads, or managers at any stage of their career will benefit greatly from this book, which provides guidance and knowledge that would otherwise take decades and many projects to acquire. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Software engineering and computer science students need a resource that explains how to apply design patterns at the enterprise level, allowing them to design and implement systems of high stability and quality. Software Architecture Design Patterns in Java is a detailed explanation of how to apply design patterns and develop software architectures. It provides in-depth examples in Java, and guides students by detailing when, why, and how to use specific patterns. This textbook presents 42 design patterns, including 23 GoF patterns. Categories include: Basic, Creational, Collectional, Structural, Behavioral, and Concurrency, with multiple examples for each. The discussion of each pattern includes an example implemented in Java. The source code for all examples is found on a companion Web site. The author explains the content so that it is easy to understand, and each pattern discussion includes Practice Questions to aid instructors. The textbook concludes with a case study that pulls several patterns together to demonstrate how patterns are not applied in isolation, but collaborate within domains to solve complicated problems.

For senior/graduate level courses on Object Oriented Design using C++, and the Booch (BC) - OOD book. A practical, problem-solving approach to the fundamental concepts of Object Oriented Design and their application using C++. This book is written for the "engineer in the trenches". It is a serious guide for practitioners of Object-Oriented design. The style is narrative, and accessible for the beginner, and yet the topics are covered in enough depth to be relevant to the consummate designer. The principles of OOD explained, one by one, and then demonstrated with numerous examples and case studies.

Extreme Programming is the most exciting revolution to hit the software engineering industry in the last decade. But what exactly is XP? And how do you XP? Simply put,

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XP is about playing to win. If you are serious about becoming an agile organization, decreasing your time to market, keeping your development team happy, and improving the overall quality of your software, then XP is for you. Extreme Programming in Practice provides a candid, refreshing, insiders view of how an XP project works. The artifacts presented in this book are real, the user stories are real, and the anecdotes are real. The book represents all-access, uncensored XP. The authors have chosen example over explanation, so that you can personalize the tenets of XP and put them into practice on your next development project. The book is supported with sample code and test examples. You can learn how to emphasize planning in your project; deliver multiple iterations of your project (each with increasing business value); gather customer feedback as you build; and test the integrity of your code without halting your development efforts. The authors also provide a handy summary of more than a dozen lessons learned i

Agile Values and Principles for a New Generation “In the journey to all things Agile, Uncle Bob has been there, done that, and has the both the t-shirt and the scars to show for it. This delightful book is part history, part personal stories, and all wisdom. If you want to understand what Agile is and how it came to be, this is the book for you.”

–Grady Booch “Bob’s frustration colors every sentence of Clean Agile, but it’s a justified frustration. What is in the world of Agile development is nothing compared to what could be. This book is Bob’s perspective on what to focus on to get to that ‘what could be.’ And he’s been there, so it’s worth listening.” –Kent Beck “It’s good to read Uncle Bob’s take on Agile. Whether just beginning, or a seasoned Agilista, you would do well to read this book. I agree with almost all of it. It’s just some of the parts make me realize my own shortcomings, dammit. It made me double-check our code coverage (85.09%).” –Jon Kern Nearly twenty years after the Agile Manifesto was first presented, the legendary Robert C. Martin (“Uncle Bob”) reintroduces Agile values and principles for a new generation—programmers and nonprogrammers alike. Martin, author of Clean Code and other highly influential software development guides, was there at Agile’s founding. Now, in Clean Agile: Back to Basics, he strips away misunderstandings and distractions that over the years have made it harder to use Agile than was originally intended. Martin describes what Agile is in no uncertain terms: a small discipline that helps small teams manage small projects . . . with huge implications because every big project is comprised of many small projects. Drawing on his fifty years’ experience with projects of every conceivable type, he shows how Agile can help you bring true professionalism to software development. Get back to the basics—what Agile is, was, and should always be Understand the origins, and proper practice, of SCRUM Master essential business-facing Agile practices, from small releases and acceptance tests to whole-team communication Explore Agile team members’ relationships with each other, and with their product Rediscover indispensable Agile technical practices: TDD, refactoring, simple design, and pair programming Understand the central roles values and craftsmanship play in your Agile team’s success If you want Agile’s true benefits, there are no shortcuts: You need to do Agile right. Clean Agile: Back to Basics will show you how, whether you’re a developer, tester, manager, project manager, or customer. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

"After many decades - and even more methodologies - software projects are still failing.

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Why? Managers see software development as a production line. Companies don't know how to manage software projects and hire good developers. Many developers still behave like factory workers, providing terrible service to their employers and clients. Agile was a big step forward, but not enough. What's missing? The right mindset - for both developers and their employers. As developers worldwide are recognizing, the right mindset is craftsmanship ... Mancuso explains what craftsmanship means to the developer and his or her organization, and shows how to live it every day in your real-world development environment. Mancuso shows how software craftsmanship fits with and helps you improve upon best-practice technical disciplines such as agile and lean, taking all your development projects to the next level. You'll learn how to change the disastrous perception that software developers are the same as factory workers, and that software projects can be run like factories. By placing greater professionalism, technical excellence, and customer satisfaction at the heart of what you do, you won't just deliver more value to everyone involved: you'll be happier and more fulfilled doing it"--Publisher's description.

Salary surveys worldwide regularly place software architect in the top 10 best jobs, yet no real guide exists to help developers become architects. Until now. This book provides the first comprehensive overview of software architecture's many aspects. Aspiring and existing architects alike will examine architectural characteristics, architectural patterns, component determination, diagramming and presenting architecture, evolutionary architecture, and many other topics. Mark Richards and Neal Ford—hands-on practitioners who have taught software architecture classes professionally for years—focus on architecture principles that apply across all technology stacks. You'll explore software architecture in a modern light, taking into account all the innovations of the past decade. This book examines: Architecture patterns: The technical basis for many architectural decisions Components: Identification, coupling, cohesion, partitioning, and granularity Soft skills: Effective team management, meetings, negotiation, presentations, and more Modernity: Engineering practices and operational approaches that have changed radically in the past few years Architecture as an engineering discipline: Repeatable results, metrics, and concrete valuations that add rigor to software architecture

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