

# Clean Architecture A Craftsmans To Software

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.

Great software architects aren't born. They are a product of decades of building real-life solutions and relentless learning. They become really good at their trade closer to the retirement age. But most startups are fostered by young entrepreneurs who dare to try but lack the experience. They also lack the \$\$ to hire a silver-haired architect to join their team from day one. Left to their own faculties, the entrepreneurs and their engineering teams quickly get on the path of learning from their own mistakes. Eventually, they discover this is the most expensive way of learning. Over time they get better, and some become the true masters of the

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craft - but way too late to make a difference for their early-day projects. This book is meant to break the vicious circle. It isn't a textbook, at least not in the traditional sense. It is a business-centric practical guide to software architecture, intended for software engineers, technology executives, students of computer science, and tech-savvy entrepreneurs who want to de-risk their entrepreneurial endeavors or to fast-track their careers in software engineering. The recipes in this book are highly practical, battle-tested, and current for building mid- to large-scale systems in 2019.

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

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

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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 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

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framework specifics are needed, they are thoroughly explained.

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

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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.

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

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colleagues, their users, and above all, themselves . With Martin's guidance and advice, you can consistently write code that builds trust instead of undermining it -- trust among your users and throughout a society that depends on software for its very survival.

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

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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.

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.

This book introduces the author's collection of wisdom under one umbrella: Software Craftmanship. This approach is unique in that it spells out a programmer-centric way to build software. In other words, all the best computers, proven components, and most robust languages mean nothing if the programmer does not understand their craft.

“One of the most significant books in my life.” –Obie Fernandez, Author, *The Rails Way* “Twenty years ago, the first edition of *The Pragmatic Programmer* completely changed the trajectory of my career. This new edition could do the same for yours.” –Mike Cohn, Author of *Succeeding with Agile*, *Agile Estimating and Planning*, and *User Stories Applied* “. . . filled with practical advice, both technical and professional, that will serve you and your projects well for years to come.” –Andrea Goulet, CEO, Corgibytes, Founder, LegacyCode.Rocks “. . . lightning does strike twice, and this book is proof.” –VM (Vicky) Brasseur, Director of Open Source Strategy, Juniper Networks *The Pragmatic Programmer* is one of those rare tech books you’ll read, re-read, and read again over the years. Whether you’re new to the field or

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an experienced practitioner, you'll come away with fresh insights each and every time. Dave Thomas and Andy Hunt wrote the first edition of this influential book in 1999 to help their clients create better software and rediscover the joy of coding. These lessons have helped a generation of programmers examine the very essence of software development, independent of any particular language, framework, or methodology, and the Pragmatic philosophy has spawned hundreds of books, screencasts, and audio books, as well as thousands of careers and success stories. Now, twenty years later, this new edition re-examines what it means to be a modern programmer. Topics range from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to:

- Fight software rot
- Learn continuously
- Avoid the trap of duplicating knowledge
- Write flexible, dynamic, and adaptable code
- Harness the power of basic tools
- Avoid programming by coincidence
- Learn real requirements
- Solve the underlying problems of concurrent code
- Guard against security vulnerabilities
- Build teams of Pragmatic Programmers
- Take responsibility for your work and career
- Test ruthlessly and effectively, including property-based testing
- Implement the Pragmatic Starter Kit
- Delight your users

Written as a series of self-contained sections and filled with classic and fresh anecdotes, thoughtful examples, and interesting analogies, *The Pragmatic Programmer* illustrates the best approaches and major pitfalls of many different aspects of software development. Whether you're a new coder, an



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experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Practical Clean Architecture Solutions for Flutter 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. Martin ("Uncle Bob") reveals those rules and helps you apply them. Learn what software architects need to achieve-and core disciplines and practices for achieving it.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 the mobile development using Flutter.Define appropriate boundaries and layers, and organize components and services.See why designs and architectures go wrong, and how to prevent (or fix) these failuresClean Architecture is essential reading for every current or aspiring software architect, systems analyst, system designer, and software manager-and for every

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programmer who must execute someone else's designs. Your book has access to GitHub repositories with the full codebase, updates, and/or corrections as they become available. See the inside book for details. Drawing on 20+ years helping software teams succeed in nearly 150 organizations, Karl Wieggers presents 60 concise lessons and practical recommendations students can apply to all kinds of projects, regardless of application domain, technology, development lifecycle, or platform infrastructure. Embodying both wisdom for deeper understanding and guidance for practical use, this book represent an invaluable complement to the technical nuts and bolts software developers usually study. Software Development Pearls covers multiple crucial domains of project success: requirements, design, project management, culture and teamwork, quality, and process improvement. Each chapter suggests several first steps and next steps to help you begin immediately applying the author's hard-won lessons--and writing code that is more successful in every way that matters.

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

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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.

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

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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

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 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

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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 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.

Apply Different Architectures to Your Codebase!  
Advanced iOS App Architecture guides you through building one real-world app written in different architectures to give you hands-on and practical

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experience working in different architectures. This book will also guide you through the theory you need to gain a solid foundation of architecture concepts so that you can make your own informed decisions on how to use them in your codebase. Who This Book Is For This book is for intermediate iOS developers who already know the basics of iOS and are looking to build apps using defined architectures, making apps cleaner and easier to maintain. Topics Covered in Advanced iOS App Architecture Navigating Architecture Topics: Learn the theory behind various architectures to help inform which works best for you in different situations you may face. Managing Dependencies: Learn how to manage dependencies both internally and externally within your app. MVVM Architecture: Explore the history of the MVVM architecture and begin building KOOBER - the book's project app - using MVVM principles. Redux Architecture: Explore the history of the Redux architecture and continue building KOOBER using Redux principles. Elements Architecture: Explore the history of the Elements architecture and continue building KOOBER using Elements principles. SwiftUI: Explore SwiftUI and find out how to adapt existing application architectures for use with SwiftUI. After reading this book, you'll have the knowledge to decide which types of architecture components suit your apps and you'll have a deep understanding of the covered architectures. About the iOS Architecture Team The architecture team is a group of seasoned developers who work for large multi-national companies who deal with large and diverse code bases on a daily basis. The

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knowledge procured over years of development is now being transferred to you through book. We hope you enjoy the book and, hopefully, you'll apply some of the architectures you've learned to your own apps

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

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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

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



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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 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

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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

Clean Architecture A Craftsman's Guide to Software Structure and Design Prentice Hall

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.

More C++ Gems picks up where the first book left off,

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presenting tips, tricks, proven strategies, easy-to-follow techniques, and usable source code.

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

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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 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.

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.

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL

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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 This comprehensive, pragmatic tutorial on Agile Development and eXtreme programming, written by one of the founding fathers of Agile Development: Teaches software developers and project managers how to get projects done on time, and on budget using the power of Agile Development; Uses real-world case studies to show how to of plan, test, refactor, and pair program using eXtreme programming; Contains a wealth of reusable C++ and Java code; Focuses on solving customer oriented systems problems using UML and Design

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Patterns.

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. 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

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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.

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

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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 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, 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



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development efforts. The authors also provide a handy summary of more than a dozen lessons learned i

Managing Humans is a selection of the best essays from Michael Lopp's popular website Rands in Repose([www.randsinrepose.com](http://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, hilarious, and always informative.

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.

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

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offers start-to-finish strategies for working more effectively with large, untested legacy code bases. This book draws on material Michael created for his renowned Object Mentor seminars: techniques Michael has used in mentoring to help hundreds of developers, technical managers, and testers bring their legacy systems under control. The topics covered include Understanding the mechanics of software change: adding features, fixing bugs, improving design, optimizing performance Getting legacy code into a test harness Writing tests that protect you against introducing new problems Techniques that can be used with any language or platform—with examples in Java, C++, C, and C# Accurately identifying where code changes need to be made Coping with legacy systems that aren't object-oriented Handling applications that don't seem to have any structure This book also includes a catalog of twenty-four dependency-breaking techniques that help you work with program elements in isolation and make safer changes. Domain Driven Design is a vision and approach for dealing with highly complex domains that is based on making the domain itself the main focus of the project, and maintaining a software model that reflects a deep understanding of the domain. This book is a short, quickly-readable summary and introduction to the fundamentals of DDD; it does not introduce any new concepts; it attempts to concisely

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summarize the essence of what DDD is, drawing mostly Eric Evans' original book, as well other sources since published such as Jimmy Nilsson's Applying Domain Driven Design, and various DDD discussion forums. The main topics covered in the book include: Building Domain Knowledge, The Ubiquitous Language, Model Driven Design, Refactoring Toward Deeper Insight, and Preserving Model Integrity. Also included is an interview with Eric Evans on Domain Driven Design today.

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

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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

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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.

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.

"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

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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. TL;DR Compound variable names, validators, private static literals, configurable objects, inheritance, annotations, MVC, dependency injection containers, reflection, ORM and even algorithms are our enemies. What others in the trenches say about The Pragmatic Programmer... “The cool thing about this book is that it’s

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great for keeping the programming process fresh. The book helps you to continue to grow and clearly comes from people who have been there.” —Kent Beck, author of Extreme Programming Explained: Embrace Change “I found this book to be a great mix of solid advice and wonderful analogies!” —Martin Fowler, author of Refactoring and UML Distilled “I would buy a copy, read it twice, then tell all my colleagues to run out and grab a copy. This is a book I would never loan because I would worry about it being lost.” —Kevin Ruland, Management Science, MSG-Logistics “The wisdom and practical experience of the authors is obvious. The topics presented are relevant and useful.... By far its greatest strength for me has been the outstanding analogies—tracer bullets, broken windows, and the fabulous helicopter-based explanation of the need for orthogonality, especially in a crisis situation. I have little doubt that this book will eventually become an excellent source of useful information for journeymen programmers and expert mentors alike.” —John Lakos, author of Large-Scale C++ Software Design “This is the sort of book I will buy a dozen copies of when it comes out so I can give it to my clients.” —Eric Vought, Software Engineer “Most modern books on software development fail to cover the basics of what makes a great software developer, instead spending their time on syntax or technology where in reality the greatest leverage possible for any software team is in having talented developers who really know their craft well. An excellent book.” —Pete McBreen, Independent Consultant “Since reading this book, I have implemented many of the practical suggestions and tips it contains. Across the board, they have saved my company time and money while helping me get my job done quicker! This should be a desktop reference for everyone who works with code for a living.” —Jared Richardson, Senior Software Developer, iRenaissance, Inc. “I would like to see this issued

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to every new employee at my company....” —Chris Cleeland, Senior Software Engineer, Object Computing, Inc. “If I’m putting together a project, it’s the authors of this book that I want. . . . And failing that I’d settle for people who’ve read their book.” —Ward Cunningham

Straight from the programming trenches, *The Pragmatic Programmer* cuts through the increasing specialization and technicalities of modern software development to examine the core process--taking a requirement and producing working, maintainable code that delights its users. It covers topics ranging from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to Fight software rot; Avoid the trap of duplicating knowledge; Write flexible, dynamic, and adaptable code; Avoid programming by coincidence; Bullet-proof your code with contracts, assertions, and exceptions; Capture real requirements; Test ruthlessly and effectively; Delight your users; Build teams of pragmatic programmers; and Make your developments more precise with automation. Written as a series of self-contained sections and filled with entertaining anecdotes, thoughtful examples, and interesting analogies, *The Pragmatic Programmer* illustrates the best practices and major pitfalls of many different aspects of software development. Whether you're a new coder, an experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer.

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



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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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