Codeorigin, LLC

Sudipta Mukherjee

The Robert C. Martin Clean Code Collection (Collection)

Robert Martin. 2011-12-09 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

Official Gazette of the United States Patent and Trademark Office ,2006

Code Quality Diomidis Spinellis, 2006-04-03 Page 26: How can I avoid off-by-one errors? Page 143: Are Trojan Horse attacks for real? Page 158: Where should I look when my application can't handle its workload? Page 256: How can I detect memory leaks? Page 309: How do I target my application to international markets? Page 394: How should I name my code's identifiers? Page 441: How can I find and improve the code coverage of my tests? Diomidis Spinellis' first book, Code Reading, showed programmers how to understand and modify key functional properties of software. Code Quality focuses on non-functional properties, demonstrating how to meet such critical requirements as reliability, security, portability, and maintainability, as well as efficiency in time and space. Spinellis draws on hundreds of examples from open source projects--such as the Apache web and application servers, the BSD Unix systems, and the HSQLDB Java database--to illustrate concepts and techniques that every professional software developer will be able to appreciate and apply immediately. Complete files for the open source code illustrated in this book are available online at: http://www.spinellis.gr/codequality/

Code Reading Diomidis Spinellis,2003 CD-ROM contains cross-referenced code.

The Clean Coder Robert C. Martin,2011 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.

Code Leader Patrick Cauldwell,2008-04-30 This book is for the career developer who wants to take his or her skill set and/or

project to the next level. If you are a professional software developer with 3-4 years of experience looking to bring a higher level of discipline to your project, or to learn the skills that will help you transition from software engineer to technical lead, then this book is for you. The topics covered in this book will help you focus on delivering software at a higher quality and lower cost. The book is about practical techniques and practices that will help you and your team realize those goals. This book is for the developer understands that the business of software is, first and foremost, business. Writing code is fun, but writing high-quality code on time and at the lowest possible cost is what makes a software project successful. A team lead or architect who wants to succeed must keep that in mind. Given that target audience, this book assumes a certain level of skill at reading code in one or more languages, and basic familiarity with building and testing software projects. It also assumes that you have at least a basic understanding of the software development lifecycle, and how requirements from customers become testable software projects. Who This Book Is Not For: This is not a book for the entry-level developer fresh out of college, or for those just getting started as professional coders. It isn't a book about writing code; it's a book about how we write code together while keeping quality up and costs down. It is not for those who want to learn to write more efficient or literate code. There are plenty of other books available on those subjects, as mentioned previously. This is also not a book about project management or development methodology. All of the strategies and techniques presented here are just as applicable to waterfall projects as they are to those employing Agile methodologies. While certain strategies such as Test-Driven Development and Continuous Integration have risen to popularity hand in hand with Agile development methodologies, there is no coupling between them. There are plenty of projects run using SCRUM that do not use TDD, and there are just as many waterfall projects that do. Philosophy versus Practicality: There are a lot of religious

arguments in software development. Exceptions versus result codes, strongly typed versus dynamic languages, and where to put your curly braces are just a few examples. This book tried to steer clear of those arguments here. Most of the chapters in this book deal with practical steps that you as a developer can take to improve your skills and improve the state of your project. The author makes no claims that these practices represent the way to write software. They represent strategies that have worked well for the author and other developers that he have worked closely with. Philosophy certainly has its place in software development. Much of the current thinking in project management has been influenced by the Agile philosophy, for example. The next wave may be influenced by the Lean methodologies developed by Toyota for building automobiles. Because it represents a philosophy, the Lean process model can be applied to building software just as easily as to building cars. On the other hand, because they exist at the philosophical level, such methodologies can be difficult to conceptualize. The book tries to favor the practical over the philosophical, the concrete over the theoretical. This should be the kind of book that you can pick up, read one chapter of, and go away with some practical changes you can make to your software project that will make it better. That said, the first part of this book is entitled "Philosophy" because the strategies described in it represent ways of approaching a problem rather than a specific solution. There are just as many practical ways to do Test-Driven Development as there are ways to manage a software project. You will have to pick the way that fits your chosen programming language, environment, and team structure. The book has tried to describe some tangible ways of realizing TDD, but it remains an abstract ideal rather than a one-size-fits-all technical solution. The same applies to Continuous Integration. There are numerous ways of thinking about and achieving a Continuous Integration solution, and this book presents only a few. Continuous Integration represents a way of thinking about your

development process rather than a concrete or specific technique. The second and third parts represent more concrete process and construction techniques that can improve your code and your project. They focus on the pragmatic rather than the philosophical. Every Little Bit Helps: You do not have to sit down and read this book from cover to cover. While there are interrelationships between the chapters, each chapter can also stand on its own. If you know that you have a particular problem such as error handling with your current project, read that chapter and try to implement some of the suggestions in it. Don't feel that you have to overhaul your entire software project at once. The various techniques described in this book can all incrementally improve a project one at a time. If you are starting a brand new project and have an opportunity to define its structure, then by all means read the whole book and see how it influences the way you design your project. If you have to work within an existing project structure, you might have more success applying a few improvements at a time. In terms of personal career growth, the same applies. Every new technique you learn makes you a better developer, so take them one at a time as your schedule and projects allow. Examples: Most of the examples in this book are written in C#. However, the techniques described in this book apply just as well to any other modern programming language with a little translation. Even if you are unfamiliar with the inner workings or details of C# as a language, the examples are very small and simple to understand. Again, this is not a book about how to write code, and the examples in it are all intended to illustrate a specific point, not to become a part of your software project in any literal sense. This book is organized into three sections, Philosophy, Process and Code Construction. The following is a short summary of what you will find in each section and chapter. Part I (Philosophy) contains chapters that focus on abstract ideas about how to approach a software project. Each chapter contains practical examples of how to realize those ideas. Chapter 1 (Buy, not Build) describes how to

go about deciding which parts of your software project you need to write yourself and which parts you may be able to purchase or otherwise leverage from someplace else. In order to keep costs down and focus on your real competitive advantage, it is necessary to write only those parts of your application that you really need to. Chapter 2 (Test-Driven Development) examines the Test-Driven Development (or Test-Driven Design) philosophy and some practical ways of applying it to your development lifecycle to produce higher-quality code in less time. Chapter 3 (Continuous Integration) explores the Continuous Integration philosophy and how you can apply it to your project. CI involves automating your build and unit testing processes to give developers a shorter feedback cycle about changes that they make to the project. A shorter feedback cycle makes it easier for developers to work together as a team and at a higher level of productivity. The chapters in Part II (Process) explore processes and tools that you can use as a team to improve the quality of your source code and make it easier to understand and to maintain. Chapter 4 (Done Is Done) contains suggestions for defining what it means for a developer to "finish" a development task. Creating a "done is done" policy for your team can make it easier for developers to work together, and easier for developers and testers to work together. If everyone on your team follows the same set of steps to complete each task, then development will be more predictable and of a higher quality. Chapter 5 (Testing) presents some concrete suggestions for how to create tests, how to run them, and how to organize them to make them easier to run, easier to measure, and more useful to developers and to testers. Included are sections on what code coverage means and how to measure it effectively, how to organize your tests by type, and how to automate your testing processes to get the most benefit from them. Chapter 6 (Source Control) explains techniques for using your source control system more effectively so that it is easier for developers to work together on the same project, and easier to

correlate changes in source control with physical software binaries and with defect or issue reports in your tracking system. Chapter 7 (Static Analysis) examines what static analysis is, what information it can provide, and how it can improve the quality and maintainability of your projects. Part III (Code Construction) includes chapters on specific coding techniques that can improve the quality and maintainability of your software projects. Chapter 8 (Contract, Contract!) tackles programming by contract and how that can make your code easier for developers to understand and to use. Programming by contract can also make your application easier (and therefore less expensive) to maintain and support. Chapter 9 (Limiting Dependencies) focuses on techniques for limiting how dependent each part of your application is upon the others. Limiting dependencies can lead to software that is easier to make changes to and cheaper to maintain as well as easier to deploy and test. Chapter 10 (The Model-View-Presenter Model) offers a brief description of the MVP model and explains how following the MVP model will make your application easier to test. Chapter 11 (Tracing) describes ways to make the most of tracing in your application. Defining and following a solid tracing policy makes your application easier to debug and easier for your support personnel and/or your customers to support. Chapter 12 (Error Handing) presents some techniques for handling errors in your code that if followed consistently make your application easier to debug and to support. Part IV (Putting It All Together) is simply a chapter that describes a day in the life of a developer who is following the guiding principles and using the techniques described in the rest of the book. Chapter 13 (Calculator Project: A Case Study) shows many of this book's principles and techniques in actual use.

Construction and Evolution of Code Generators Sven Jörges, 2013-01-12 Automatic code generation is an essential cornerstone of model-driven approaches to software development. Currently, lots of techniques are available that support the specification and implementation of code generators, such as engines based on templates or rule-based transformations. All those techniques have in common that code generators are either directly programmed or described by means of textual specifications. This monograph presents Genesys, a general approach, which advocates the graphical development of code generators for arbitrary source and target languages, on the basis of models and services. In particular, it is designed to support incremental language development on arbitrary metalevels. The use of models allows building code generators in a truly platformindependent and domain-specific way. Furthermore, models are amenable to formal verification methods such as model checking, which increase the reliability and robustness of the code generators. Services enable the reuse and integration of existing code generation frameworks and tools regardless of their complexity, and at the same time manifest as easy-to-use building blocks which facilitate agile development through quick interchangeability. Both, models and services, are reusable and thus form a growing repository for the fast creation and evolution of code generators.

Clean Craftsmanship Robert C. Martin,2021-09-16 How to Write Code You're Proud of . . . Every Single Day . . . [A] timely and humble reminder of the ever-increasing complexity of our programmatic world and how we owe it to the legacy of humankind--and to ourselves--to practice ethical development. Take your time reading Clean Craftsmanship. . . . Keep this book on your go-to bookshelf. Let this book be your old friend--your Uncle Bob, your guide--as you make your way through this world with curiosity and courage. --From the Foreword by Stacia Heimgartner Viscardi, CST & Agile Mentor In Clean Craftsmanship, the legendary Robert C. Martin (Uncle Bob) has written the principles that define the profession--and the craft--of software development. Uncle Bob brings together the disciplines, standards, and ethics you need to deliver robust, effective code and to be

proud of all the software you write. Robert Martin, the best-selling author of Clean Code, provides a pragmatic, technical, and prescriptive guide to the foundational disciplines of software craftsmanship. He discusses standards, showing how the world's expectations of developers often differ from their own and helping you bring the two in sync. Bob concludes with the ethics of the programming profession, describing the fundamental promises all developers should make to their colleagues, their users, and, above all, themselves. With Uncle Bob's insights, all programmers and their managers can consistently deliver code that builds trust instead of undermining it--trust among users and throughout societies that depend on software for their survival. Moving towards the north star of true software craftsmanship: the state of knowing how to program well Practical, specific guidance for applying five core disciplines: test-driven development, refactoring, simple design, collaborative programming, and acceptance tests How developers and teams can promote productivity, quality, and courage The true meaning of integrity and teamwork among programmers, and ten specific commitments every software professional should make Register your book for convenient access to the book's companion videos. updates, and/or corrections as they become available. See inside book for details.

The Art of Readable Code Dustin Boswell, Trevor Foucher, 2011-11-03 As programmers, we've all seen source code that's so ugly and buggy it makes our brain ache. Over the past five years, authors Dustin Boswell and Trevor Foucher have analyzed hundreds of examples of bad code (much of it their own) to determine why they're bad and how they could be improved. Their conclusion? You need to write code that minimizes the time it would take someone else to understand it—even if that someone else is you. This book focuses on basic principles and practical techniques you can apply every time you write code. Using easy-to-digest code examples from different languages, each chapter

dives into a different aspect of coding, and demonstrates how you can make your code easy to understand. Simplify naming, commenting, and formatting with tips that apply to every line of code Refine your program's loops, logic, and variables to reduce complexity and confusion Attack problems at the function level, such as reorganizing blocks of code to do one task at a time Write effective test code that is thorough and concise—as well as readable Being aware of how the code you create affects those who look at it later is an important part of developing software. The authors did a great job in taking you through the different aspects of this challenge, explaining the details with instructive examples. —Michael Hunger, passionate Software Developer

Source Code Analytics With Roslyn and JavaScript Data Visualization Sudipta Mukherjee, 2016-12-20 Learn how to build an interactive source code analytics system using Roslyn and JavaScript. This concise 150 page book will help you create and use practical code analysis tools utilizing the new features of Microsoft's Roslyn compiler to understand the health of your code and identify parts of the code for refactoring. Source code is one of the biggest assets of a software company. However if not maintained well, it can become a big liability. As source code becomes larger, more complex and accessed via the cloud, maintaining code quality becomes even more challenging. The author provides straightforward tools and advice on how to manage code quality in this new environment. Roslyn exposes a set of APIs which allow developers to parse their C# and VB.NET code and drastically lower the barrier to entry for Meta programming in .NET. Roslyn has a dedicated set of APIs for creating custom refactoring for integrating with Visual Studio. This title will show readers how to use Roslyn along with industry standard JavaScript visualization APIs like HighCharts, D3.js etc to create a scalable and highly responsive source code analytics system. What You Will Learn Understand the Roslyn Syntax API Use Data Visualization techniques to assist code analysis process

visually Code health monitoring matrices (from the standard of Code Query Language) Code mining techniques to identify design patterns used in source code Code forensics techniques to identify probable author of a given source code Techniques to identify duplicate/near duplicate code Who This Book is For .NET Software Developers and Architects

Clean Code in C# Jason Alls, 2020-07-17 Develop your programming skills by exploring essential topics such as code reviews, implementing TDD and BDD, and designing APIs to overcome code inefficiency, redundancy, and other problems arising from bad code Key FeaturesWrite code that cleanly integrates with other systems while maintaining well-defined software boundariesUnderstand how coding principles and standards enhance software qualityLearn how to avoid common errors while implementing concurrency or threadingBook Description Traditionally associated with developing Windows desktop applications and games, C# is now used in a wide variety of domains, such as web and cloud apps, and has become increasingly popular for mobile development. Despite its extensive coding features, professionals experience problems related to efficiency, scalability, and maintainability because of bad code. Clean Code in C# will help you identify these problems and solve them using coding best practices. The book starts with a comparison of good and bad code, helping you understand the importance of coding standards, principles, and methodologies. You'll then get to grips with code reviews and their role in improving your code while ensuring that you adhere to industryrecognized coding standards. This C# book covers unit testing, delves into test-driven development, and addresses cross-cutting concerns. You'll explore good programming practices for objects, data structures, exception handling, and other aspects of writing C# computer programs. Once you've studied API design and discovered tools for improving code quality, you'll look at examples of bad code and understand which coding practices you

should avoid. By the end of this clean code book, you'll have the developed skills you need in order to apply industry-approved coding practices to write clean, readable, extendable, and maintainable C# code. What you will learnWrite code that allows software to be modified and adapted over timeImplement the failpass-refactor methodology using a sample C# console applicationAddress cross-cutting concerns with the help of software design patternsWrite custom C# exceptions that provide meaningful informationIdentify poor quality C# code that needs to be refactoredSecure APIs with API keys and protect data using Azure Key VaultImprove your code's performance by using tools for profiling and refactoring Who this book is for This coding book is for C# developers, team leads, senior software engineers, and software architects who want to improve the efficiency of their legacy systems. A strong understanding of C# programming is required.

Five Lines of Code Christian Clausen, 2021-11-09 Five Lines of Code teaches refactoring that's focused on concrete rules and getting any method down to five lines or less! There's no jargon or tricky automated-testing skills required, just easy guidelines and patterns illustrated by detailed code samples. In Five Lines of Code you will learn: The signs of bad code Improving code safely, even when you don't understand it Balancing optimization and code generality Proper compiler practices The Extract method, Introducing Strategy pattern, and many other refactoring patterns Writing stable code that enables change-by-addition Writing code that needs no comments Real-world practices for great refactoring Improving existing code—refactoring—is one of the most common tasks you'll face as a programmer. Five Lines of Code teaches you clear and actionable refactoring rules that you can apply without relying on intuitive judgements such as "code smells." Following the author's expert perspective—that refactoring and code smells can be learned by following a concrete set of principles—you'll learn when to refactor your code, what patterns to apply to what

problem, and the code characteristics that indicate it's time for a rework. Foreword by Robert C. Martin. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Every codebase includes mistakes and inefficiencies that you need to find and fix. Refactor the right way, and your code becomes elegant, easy to read, and easy to maintain. In this book, you'll learn a unique approach to refactoring that implements any method in five lines or fewer. You'll also discover a secret most senior devs know: sometimes it's guicker to hammer out code and fix it later! About the book Five Lines of Code is a fresh look at refactoring for developers of all skill levels. In it, you'll master author Christian Clausen's innovative approach, learning concrete rules to get any method down to five lines—or less! You'll learn when to refactor, specific refactoring patterns that apply to most common problems, and characteristics of code that should be deleted altogether. What's inside The signs of bad code Improving code safely, even when you don't understand it Balancing optimization and code generality Proper compiler practices About the reader For developers of all skill levels. Examples use easy-to-read Typescript, in the same style as Java and C#. About the author Christian Clausen works as a Technical Agile Coach, teaching teams how to refactor code. Table of Contents 1 Refactoring refactoring 2 Looking under the hood of refactoring PART 1 LEARN BY REFACTORING A COMPUTER GAME 3 Shatter long function 4 Make type codes work 5 Fuse similar code together 6 Defend the data PART 2 TAKING WHAT YOU HAVE LEARNED INTO THE REAL WORLD 7 Collaborate with the compiler 8 Stay away from comments 9 Love deleting code 10 Never be afraid to add code 11 Follow the structure in the code 12 Avoid optimizations and generality 13 Make bad code look bad 14 Wrapping up

Finding Source Code on the Web for Remix and Reuse Susan Elliott Sim,Rosalva E. Gallardo-Valencia,2013-06-04 In recent years, searching for source code on the web has become

increasingly common among professional software developers and is emerging as an area of academic research. This volume surveys past research and presents the state of the art in the area of code retrieval on the web. This work is concerned with the algorithms, systems, and tools to allow programmers to search for source code on the web and the empirical studies of these inventions and practices. It is a label that we apply to a set of related research from software engineering, information retrieval, human-computer interaction, management, as well as commercial products. The division of code retrieval on the web into snippet remixing and component reuse is driven both by empirical data, and analysis of existing search engines and tools. Contributors include leading researchers from human-computer interaction, software engineering, programming languages, and management. Finding Source Code on the Web for Remix and Reuse consists of five parts. Part I is titled Programmers and Practices, and consists of a retrospective chapter and two empirical studies on how programmers search the web for source code. Part II is titled From Data Structures to Infrastructures, and covers the creation of ground-breaking search engines for code retrieval required ingenuity in the adaptation of existing technology and in the creation of new algorithms and data structures. Part III focuses on Reuse: Components and Projects, which are reused with minimal modification. Part IV is on Remix: Snippets and Answers, which examines how source code from the web can also be used as solutions to problems and answers to questions. The book concludes with Part V, Looking Ahead, that looks at future programming and the legalities of software reuse and remix and the implications of current intellectual property law on the future of software development. The story, Richie Boss: Private Investigator Manager, was selected as the winner of a crowdfunded short story contest.

<u>Learning from Code and Non-code Artifacts</u> Jordan Joseph Henkel,2022 Three things are fundamentally true about software:

(i) every day that passes we, as a society, generate more software (more code, more documentation, and more software-related artifacts of all kinds), (ii) it is easier to write new software than it is to understand and maintain existing software, and (iii) we depend on software in every area of our lives (from critical infrastructure to entertainment and everything in between). These three fundamental truths set the stage for one massive problem: if there is more software every day, and it is hard to understand and maintain, how can we ever keep up with this unbounded growth? How can we ever truly understand the software we depend on if we are adding to it every single day? In this thesis, we provide new ideas and tools that help with some of these issues. More specifically, this thesis takes the position that we need tools and techniques for understanding and learning from software. To do this, we consider software to be a composite of source code and other, non-code, artifacts (build scripts, documentation, etc.). We introduce techniques for working with both code and non-code artifacts; for code, we introduce a form of code embeddings (learned from a semantic representation of code: abstracted symbol traces); we then create a novel specification mining technique that uses these semantic code embeddings; additionally, we explore the robustness of models of code; and, to address non-code artifacts, we mine tree-association rules from Dockerfiles, from which we learn best practices; we take these learned best practices and create a human-in-the-loop technique for automated repair of Dockerfiles. Finally, to accelerate empirical research on software and lay a groundwork for a more comprehensive solution to trusting the growing amount of software we-as a society-create, we introduce code-book. codebook is a tool for interactively guerying and analyzing code inspired by the great successes of the Data Science community. With code-book, we introduce a novel guery-by-example-based query language for asking questions about code. Furthermore, we develop this guery language so that users can ask guestions that

incorporate both code structure and fuzzy semantic constraints (based on code embeddings).

Good Code, Bad Code Tom Long, 2021-09-21 Practical techniques for writing code that is robust, reliable, and easy for team members to understand and adapt. Summary In Good Code, Bad Code you'll learn how to: Think about code like an effective software engineer Write functions that read like well-structured sentences Ensure code is reliable and bug free Effectively unit test code Identify code that can cause problems and improve it Write code that is reusable and adaptable to new requirements Improve your medium and long-term productivity Save yourself and your team time The difference between good code or bad code often comes down to how you apply the established practices of the software development community. In Good Code, Bad Code you'll learn how to boost your productivity and effectiveness with code development insights normally only learned through careful mentorship and hundreds of code reviews. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Software development is a team sport. For an application to succeed, your code needs to be robust and easy for others to understand, maintain, and adapt. Whether you're working on an enterprise team, contributing to an open source project, or bootstrapping a startup, it pays to know the difference between good code and bad code. About the book Good Code, Bad Code is a clear, practical introduction to writing code that's a snap to read, apply, and remember. With dozens of instantly-useful techniques, you'll find coding insights that normally take years of experience to master. In this fast-paced guide, Google software engineer Tom Long teaches you a host of rules to apply, along with advice on when to break them! What's inside Write functions that read like sentences Ensure your code stays bug-free How to sniff out bad code Save time for yourself and your team About the reader For coders early in their careers who are familiar with an object-oriented language, such as Java or

C#. About the author Tom Long is a software engineer at Google where he works as a tech lead. Among other tasks, he regularly mentors new software engineers in professional coding best practices. Table of Contents PART 1 IN THEORY 1 Code quality 2 Layers of abstraction 3 Other engineers and code contracts 4 Errors PART 2 IN PRACTICE 5 Make code readable 6 Avoid surprises 7 Make code hard to misuse 8 Make code modular 9 Make code reusable and generalizable PART 3 UNIT TESTING 10 Unit testing principles 11 Unit testing practices

Code Complete Steve McConnell, 2004-06-09 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 guickly and effectively Resolve critical construction issues early and correctly Build quality into the beginning, middle, and end of your project

Resilient Code Leonard Sperry,2021-11-27 Why does the word legacy with synonyms like heritage and birthright now describe difficult software? What anchors our code making it rigid

and unyielding? How do we identify those anchors? How do we write code that is less painful and more resilient? Leonard is a software architect and .NET specialist who has spent his career asking and answering these questions. He has developed a list of maxims that serve as reminders on how to build systems that are easier to maintain, adapt, and grow. When encountering difficult code, it is easy to want to tear it all down and start fresh. If we choose to do that, how do we ensure our successors will not want to do the same? What if we didn't have to tear it all down? What if we could identify the pain points in the current system and abstract them? This book is full of examples. For example, the open/closed principle, the second of five well-known SOLID principles, says our code should be open for extension and closed for modification, but what does it look like when our code is closed for extension or open for modification? Each chapter of this book will focus on one of Leonard's code maxims which will highlight either some aspect of code design or the software development lifecycle. Through this book, you will learn how to identify those things anchoring your code to the past. You will learn concepts that make testing and maintainability easy. Your code will be more resilient. When confronted with difficult code or changing business requirements, you will become more resilient.

Quality Code Stephen Vance, 2013-11-13 Test-driven, test-first, and test-early development practices are helping thousands of software development organizations improve their software. Now, in Quality Code: Software Testing Principles, Practices, and Patterns, Stephen Vance builds on all that's been learned about test-driven development, helping you achieve unprecedented levels of first-time quality. Using real-world code examples, this guide introduces patterns, principles, and more than two dozen detailed techniques for testing any software system more fully, effectively, and painlessly. Vance presents a conceptual framework to help you focus your efforts and design recommendations for improving testability across the software

lifecycle, and also provides hands-on guidance to simplify testing of the full spectrum of code constructs. You'll learn how to choose the best testing techniques for every situation, from the most common scenarios to threading. Two complete case studies put it all together, walking you through testing a brand-new Java application and an untested "legacy" JavaScript jQuery plugin. Whether you're developing cutting-edge code for a new start-up, or maintaining an unruly old system, this guide will help you deliver exactly what you need: quality code. • Simplify unit testing of all your code—and improve integration and system testing • Delineate intent and implementation to promote more reliable and scalable testing • Overcome confusion and misunderstandings about the mechanics of writing tests • Test "side effects," behavioral characteristics, and contextual constraints • Understand subtle interactions between design and testability—and make them work for, not against, you • Discover core principles that guide your key testing decisions • Explore testing getters/setters, string handling, encapsulation, override variations, visibility, singleton patterns, error conditions, and more

Reproduce and test complex race conditions deterministically
 Reverse Engineering of Object Oriented Code Paolo
 Tonella, Alessandra Potrich, 2007-03-06 Describes how to design object-oriented code and accompanying algorithms that can be reverse engineered for greater flexibility in future code maintenance and alteration. Provides essential object-oriented concepts and programming methods for software engineers and researchers.

Code Complete, 2nd Edition Steve Mcconnell, 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.

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