

IMPROVING THE DESIGN OF EXISTING CODE

MARTIN FOWLER

With contributions by Kent Beck, John Brant, William Opdyke, and Don Roberts

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Refactoring Improving The Design Of Existing Code

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Refactoring Improving The Design Of Existing Code:

Refactoring Martin Fowler, Kent Beck, John Brant, William Opdyke, Don Roberts, 2012-03-09 As the application of object technology particularly the Java programming language has become commonplace a new problem has emerged to confront the software development community Significant numbers of poorly designed programs have been created by less experienced developers resulting in applications that are inefficient and hard to maintain and extend Increasingly software system professionals are discovering just how difficult it is to work with these inherited non optimal applications For several years expert level object programmers have employed a growing collection of techniques to improve the structural integrity and performance of such existing software programs Referred to as refactoring these practices have remained in the domain of experts because no attempt has been made to transcribe the lore into a form that all developers could use until now In Refactoring Improving the Design of Existing Code renowned object technology mentor Martin Fowler breaks new ground demystifying these master practices and demonstrating how software practitioners can realize the significant benefits of this new process With proper training a skilled system designer can take a bad design and rework it into well designed robust code In this book Martin Fowler shows you where opportunities for refactoring typically can be found and how to go about reworking a bad design into a good one Each refactoring step is simple seemingly too simple to be worth doing Refactoring may involve moving a field from one class to another or pulling some code out of a method to turn it into its own method or even pushing some code up or down a hierarchy While these individual steps may seem elementary the cumulative effect of such small changes can radically improve the design Refactoring is a proven way to prevent software decay In addition to discussing the various techniques of refactoring the author provides a detailed catalog of more than seventy proven refactorings with helpful pointers that teach you when to apply them step by step instructions for applying each refactoring and an example illustrating how the refactoring works The illustrative examples are written in Java but the ideas are applicable to any object oriented programming language Refactoring Martin Fowler, Kent Beck, 1999 Refactoring is gaining momentum amongst the object oriented programming community It can transform the internal dynamics of applications and has the capacity to transform bad code into good code This book offers an introduction to refactoring

Refactoring Martin Fowler,2018-11-20 Martin Fowler's guide to reworking bad code into well structured code Refactoring improves the design of existing code and enhances software maintainability as well as making existing code easier to understand Original Agile Manifesto signer and software development thought leader Martin Fowler provides a catalog of refactorings that explains why you should refactor how to recognize code that needs refactoring and how to actually do it successfully no matter what language you use Refactoring principles understand the process and general principles of refactoring Code smells recognize bad smells in code that signal opportunities to refactor Application improvement quickly apply useful refactorings to make a program easier to comprehend and change Building tests writing

good tests increases a programmer s effectiveness Moving features an important part of refactoring is moving elements between contexts Data structures a collection of refactorings to organize data an important role in programs Conditional Logic use refactorings to make conditional sections easier to understand APIs modules and their functions are the building blocks of our software and APIs are the joints that we use to plug them together Inheritance it is both very useful and easy to misuse and it s often hard to see the misuse until it s in the rear view mirror refactorings can fix the misuse Examples are written in JavaScript but you shouldn t find it difficult to adapt the refactorings to whatever language you are currently using as they look mostly the same in different languages Whenever you read Refactoring it's time to read it again And if you haven t read it yet please do before writing another line of code David Heinemeier Hansson Creator of Ruby on Rails Founder CTO at Basecamp Any fool can write code that a computer can understand Good programmers write code that humans can understand M Fowler 1999 REFACTORING IMPROVING THE DESIGN OF EXISTING CODE. MATRIN. FOWLER, 1999 Refactoring Martin Fowler, 2009 Extreme Programming and Agile Methods - XP/Agile Universe **2002** Don Wells, Lauris Williams, 2003-08-02 The second XP Universe and rst Agile Universe brought together many p ple interested in building software in a new way Held in Chicago August 4 7 2002 it attracted software experts educators and developers Unlike most c ferences the venue was very dynamic Many activities were not even well de ned in advance All discussions were encouraged to be spontaneous Even so there were some written words available and you are holding all of them now We have collected as much material as possible together into this small volume It is just the tip of the iceberg of course A reminder to us of what we learned the people we met and the ideas we expressed The conference papers including research and experience papers are rep duced in these proceedings Forty one 41 papers were submitted Each subm ted paper received three reviews by program committee members The program committee consisted of 40 members Papers submitted by program committee members were refereed separately This ensured that reviewers could provide an honest feedback not seen by the paper submitters In many cases the program committee shepherded authors to signi cantly improve their initial submission prior to completing the version contained in these proceedings In the end the program committee chose 25 papers for publication 60% acceptance **Innovations in Computer Science and Engineering** H. S. Saini, Rishi Sayal, A. Govardhan, Rajkumar Buyya, 2018-05-25 The book is a collection of high quality peer reviewed research papers presented at the Fifth International Conference on Innovations in Computer Science and Engineering ICICSE 2017 held at Guru Nanak Institutions Hyderabad India during 18 19 August 2017 The book discusses a wide variety of industrial engineering and scientific applications of the engineering techniques Researchers from academic and industry present their original work and exchange ideas information techniques and applications in the field of Communication Computing and Data Science and Analytics The Guru's Guide to SQL Server Stored Procedures, XML, and HTML Ken Henderson, 2002 CD ROM contains Source code from text Object-oriented Reengineering Patterns Serge Demeyer, Stéphane

Ducasse, Oscar Nierstrasz, 2008 Object Oriented Reengineering Patterns collects and distills successful techniques in planning a reengineering project reverse engineering problem detection migration strategies and software redesign This book is made available under the Creative Commons Attribution ShareAlike 3 0 license You can either download the PDF for free or you can buy a softcover copy from lulu com Additional material is available from the book s web page at http scg Agile Software Development in the Large Jutta Eckstein, 2013 Who Says Large Teams Can t Handle Agile Software Development Agile or lightweight processes have revolutionized the software development industry They re faster and more efficient than traditional software development processes. They enable developers to embrace requirement changes during the project deliver working software in frequent iterations focus on the human factor in software development Unfortunately most agile processes are designed for small or mid sized software development projects bad news for large teams that have to deal with rapid changes to requirements That means all large teams With Agile Software Development in the Large Jutta Eckstein a leading speaker and consultant in the agile community shows how to scale agile processes to teams of up to 200 The same techniques are also relevant to teams of as few as 10 developers especially within large organizations Topics include the agile value system as used in large teams the impact of a switch to agile processes the agile coordination of several sub teams the way project size and team size influence the underlying architecture Stop getting frustrated with inflexible processes that cripple your large projects. Use this book to harness the efficiency and adaptability of agile software development Stop getting frustrated with inflexible processes that cripple your large projects Use this book to harness the efficiency and adaptability of agile software development Becoming a Better Programmer Pete Goodliffe, 2014-10-03 If you re passionate about programming and want to get better at it you ve come to the right source Code Craft author Pete Goodliffe presents a collection of useful techniques and approaches to the art and craft of programming that will help boost your career and your well being Goodliffe presents sound advice that he s learned in 15 years of professional programming The book s standalone chapters span the range of a software developer s life dealing with code learning the trade and improving performance with no language or industry bias Whether you re a seasoned developer a neophyte professional or a hobbyist you ll find valuable tips in five independent categories Code level techniques for crafting lines of code testing debugging and coping with complexity Practices approaches and attitudes keep it simple collaborate well reuse and create malleable code Tactics for learning effectively behaving ethically finding challenges and avoiding stagnation Practical ways to complete things use the right tools know what done looks like and seek help from colleagues Habits for working well with others and pursuing development as a social activity Refactoring in Java Stefano Violetta, 2023-12-29 Master code refactoring techniques improve code quality design and maintainability and boost your development productivity with this comprehensive handbook Key Features Get a thorough understanding of code refinement for enhanced codebase efficiency Work with real world examples and case studies for hands on learning and application

Focus on essential tools emphasizing development productivity and robust coding habits Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionRefactoring in Java serves as an indispensable guide to enhancing your codebase s quality and maintainability. The book begins by helping you get to grips with refactoring fundamentals including cultivating good coding habits and identifying red flags You ll explore testing methodologies essential refactoring techniques and metaprogramming as well as designing a good architecture The chapters clearly explain how to refactor and improve your code using real world examples and proven techniques Part two equips you with the ability to recognize code smells prioritize tasks and employ automated refactoring tools testing frameworks and code analysis tools You ll discover best practices to ensure efficient code improvement so that you can navigate complexities with ease In part three the book focuses on continuous learning daily practices enhancing coding proficiency and a holistic view of the architecture You ll get practical tips to mitigate risks during refactoring along with guidance on measuring impact to ensure that you become an efficient software craftsperson By the end of this book you ll be able to avoid unproductive programming or architecturing detect red flags and propose changes to improve the maintainability of your codebase What you will learn Recognize and address common issues in your code Find out how to determine which improvements are most important Implement techniques such as using polymorphism instead of conditions Efficiently leverage tools for streamlining refactoring processes Enhance code reliability through effective testing practices Develop the skills needed for clean and readable code presentation Get to grips with the tools you need for thorough code examination Apply best practices for a more efficient coding workflow Who this book is for This book is for Java developers software architects and technical leads looking for a comprehensive guide to advancing their skills in software design and refactoring The book is ideal for experienced Java enthusiasts quality assurance engineers and codebase maintainers as it provides practical insights real world examples and essential patterns Development managers who want to foster clean coding practices by using best practices for efficient workflows will also find this book useful Designing Thriving Systems Leslie J. Waguespack, 2019-04-10 This monograph illuminates a design mindset for systems artefacts that not only survive but thrive Of itself an artefact is devoid of design quality until encountered in a specific social context by human attendants Design quality is the affect of an intertwining of a an artefact's structural and behavior properties b an attendant humanly conception of quality an appreciative system and c the enfolding social context of their encounter To pursue quality in design is to interweave these three strands bound as a durable cord that evokes a visceral satisfaction or the delight of a ringing musical chord The human consciousness of design quality is fundamentally metaphoric and dynamic a perception of reality mediated by a personal value disposition In the continuum of experience living moment after moment both the attendant's metaphorical appreciation and their sense of quality evolve And thus design quality issues from perpetual concentric cycles of design construct experience learn assess calibrate over the life span of relationship with an artefact Design as a verb s purpose is to service the life in that relationship

sustain its survival and hopefully raise that life to a state of thriving Design quality manifests throughout the cycles of design as a verb rather than as a product of it Such is the mindset in which the designer must indwell and that design education must nurture While all artefacts are systems the domain of artefact design of which I am most experienced is computing systems Therefore I will rest upon that domain to explore a theory and practice of design as a verb designing thriving Encyclopedia of Software Engineering Three-Volume Set (Print) Phillip A. Laplante, 2010-11-22 Software engineering requires specialized knowledge of a broad spectrum of topics including the construction of software and the platforms applications and environments in which the software operates as well as an understanding of the people who build and use the software Offering an authoritative perspective the two volumes of the Encyclopedia of Software Engineering cover the entire multidisciplinary scope of this important field More than 200 expert contributors and reviewers from industry and academia across 21 countries provide easy to read entries that cover software requirements design construction testing maintenance configuration management quality control and software engineering management tools and methods Editor Phillip A Laplante uses the most universally recognized definition of the areas of relevance to software engineering the Software Engineering Body of Knowledge SWEBOK as a template for organizing the material Also available in an electronic format this encyclopedia supplies software engineering students IT professionals researchers managers and scholars with unrivaled coverage of the topics that encompass this ever changing field Also Available Online This Taylor E mail e reference taylorandfrancis com International Tel 44 0 20 7017 6062 E mail online sales tandf co uk The Art of Agile **Development** James Shore, Shane Warden, 2021-10-12 Most companies developing software employ something they call Agile But there s widespread misunderstanding of what Agile is and how to use it If you want to improve your software development team's agility this comprehensive guidebook's clear concrete and detailed guidance explains what to do and why and when to make trade offs In this thorough update of the classic Agile how to guide James Shore provides no nonsense advice on Agile adoption planning development delivery and management taken from over two decades of Agile experience He brings the latest ideas from Extreme Programming Scrum Lean DevOps and more into a cohesive whole Learn how to successfully bring Agile development to your team and organization or discover why Agile might not be for you This book explains how to Improve agility create the conditions necessary for Agile to succeed and scale in your organization Focus on value work as a team understand priorities provide visibility and improve continuously Deliver software reliably share ownership decrease development costs evolve designs and deploy continuously Optimize value take ownership of product Clean Code with C# Jason Alls,2023-12-22 plans budgets and experiments and produce market leading software Enhance your programming skills through code reviews TDD and BDD implementation and API design to overcome code inefficiency redundancy and other issues arising from bad code Key Features Write code that seamlessly integrates with other systems while maintaining well defined software boundaries Understand how coding principles and standards elevate

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celebrated for its focus on customer satisfaction dynamic teamwork and the production of high quality software This comprehensive guide delves deeply into XP s foundational practices values and principles providing both novice and seasoned developers with an extensive understanding of both its basic and sophisticated techniques Covering essential topics such as Test Driven Development Refactoring Pair Programming Continuous Integration and Deployment this book equips readers with the skills and insights needed to implement XP efficiently in their projects It also tackles the challenges of adopting coding standards using system metaphors practicing collective code ownership and scaling XP for larger projects ensuring a thorough exploration of the methodology Whether you re looking to enhance your existing XP practices or fully embrace the methodology for the first time Extreme Programming Mastery An In Depth Exploration and Practical Guide is an invaluable resource Discover how to nurture a collaborative team atmosphere seamlessly adapt to evolving requirements and deliver software that exceeds customer expectations Embark on your journey to mastering Extreme Programming and transform your software development processes to achieve unparalleled project quality The Guru's Guide to **Transact-SQL** Ken Henderson, 2000-02-23 Since its introduction over a decade ago the Microsoft SQL Server query language Transact SQL has become increasingly popular and more powerful The current version sports such advanced features as OLE Automation support cross platform querying facilities and full text search management This book is the consummate guide to Microsoft Transact SQL From data type nuances to complex statistical computations to the bevy of undocumented features in the language The Guru s Guide to Transact SQL imparts the knowledge you need to become a virtuoso of the language as guickly as possible In this book you will find the information explanations and advice you need to master Transact SQL and develop the best possible Transact SQL code Some 600 code examples not only illustrate important concepts and best practices but also provide working Transact SQL code that can be incorporated into your own real world DBMS applications Your journey begins with an introduction explaining language fundamentals such as database and table creation inserting and updating data queries joins data presentation and managing transactions Moving on to more advanced topics the journey continues with in depth coverage of Transact SQL performance tuning using tools such as Query Analyzer and Performance Monitor Nuances of the various T SQL data types Complex statistical calculations such as medians modes and sliding aggregates Run sequence and series identification and interrogation Advanced Data Definition Language DDL and Data Management Language DML techniques Stored procedure and trigger best practices and coding methods Transaction management Optimal cursor use and caveats to look out for Full text search Hierarchies and arrays Administrative Transact SQL OLE Automation More than 100 undocumented commands and language features including numerous unpublished DBCC command verbs trace flags stored procedures and functions Comprehensive written in understandable terms and full of practical information and examples The Guru s Guide to Transact SQL is an indispensable reference for anyone working with this database development language The accompanying CD ROM includes the complete

set of code examples found in the book as well as a SQL programming environment that will speed the development of your own top notch Transact SQL code Mastering Enterprise JavaBeans Ed Roman, Rima Patel Sriganesh, Gerald Brose, 2004-12-22 Includes more than 30 percent revised material and five new chapters covering the new 2 1 features such as EJB Timer Service and JMS as well as the latest open source Java solutions The book was developed as part of TheServerSide com online EJB community ensuring a built in audience Demonstrates how to build an EJB system program with EJB adopt best practices and harness advanced EJB concepts and techniques including transactions persistence clustering integration and performance optimization Offers practical guidance on when not to use EJB and how to use simpler less costly open source technologies in place of or in conjunction with EJB

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