Object Oriented Software Engineering Ivar Jacobson


Object-oriented Software and Engineering

Aspect-oriented Software Development with Use Cases

Head First Object-Oriented Analysis and Design

Analysis Patterns

SEMAT (Software Engineering Methods and Theory) is an international initiative designed to identify a common ground, or universal standard, for software engineering. It is supported by some of the most distinguished contributors to the field. Creating a simple language to describe methods and practices, the SEMAT team expresses this common ground as a kernel—or framework—of elements essential to all software development. The Essence of Software Engineering introduces this kernel and shows how to apply it when developing software and improving a team’s way of working. It is a book for software professionals, not methodologists. Its usefulness to development team members, who need to evaluate and choose the best practices for their work, goes well beyond the description or application of any single method. “Software is both a craft and a science, both a work of passion and a work of principle. Writing good software requires both wild flights of imagination and creativity, as well as the hard reality of engineering tradeoffs. This book is an attempt at describing that balance.” —Robert Martin (unclebob) “The work of Ivar Jacobson and his colleagues, started as part of the SEMAT initiative, has taken a systematic approach to identifying a ‘kernel’ of software engineering principles and practices that have stood the test of time and recognition.” —Bertrand Meyer “The software development industry needs and
demands a core kernel and language for defining software development practices—practices that can be mixed and matched, brought on board from other organizations; practices that can be measured; practices that can be integrated; and practices that can be compared and contrasted for speed, quality, and price. This thoughtful book gives a good grounding in ways to think about the problem, and a language to address the need, and every software engineer should read it.” —Richard Soley

Object-Oriented Software Engineering: An Agile Unified Methodology Diagramming and process are important topics in today’s software development world, as the UML diagramming language has come to be almost universally accepted. Yet process is necessary; by themselves, diagrams are of little use. Use Case Driven Object Modeling with UML: Theory and Practice combines the notation of UML with a lightweight but effective process - the ICONIX process - for designing and developing software systems. ICONIX has developed a growing following over the years. Sitting between the free-for-all of Extreme Programming and overly rigid processes such as RUP, ICONIX offers just enough structure to be successful.


Object-oriented Software Engineering The Practical, Start-to-Finish Guide to Planning and Leading Iterative Software Projects Iterative processes have gained widespread acceptance because they help software developers reduce risk and cost, manage change, improve productivity, and deliver more effective, timely solutions. But conventional project management techniques don’t work well in iterative projects, and newer iterative management techniques have been poorly documented. Managing Iterative Software Development Projects is the solution: a relentlessly practical guide to planning, organizing, estimating, staffing, and managing any iterative project, from start to finish. Leading iterative development experts Kurt Bittner and Ian Spence introduce a proven, scalable approach that improves both agility and control at the same time, satisfying the needs of developers, managers, and the business alike. Their techniques are easy to understand, and easy to use with any iterative methodology, from Rational Unified Process to Extreme Programming to the Microsoft Solutions Framework. Whatever your role—team leader, program manager, project manager, developer, sponsor, or user representative—this book will help you understand the key drivers of success in iterative projects. Leverage “time boxing” to define project lifecycles and measure results. Use Unified Process phases to facilitate controlled iterative development. Master core concepts of iterative project management, including layering and evolution. Create project roadmaps, including release plans. Discover key patterns of risk management, estimation, organization, and iteration planning. Understand what must be controlled centrally, and what you can safely delegate. Transition smoothly to iterative processes. Scale iterative project management from the smallest to the largest projects. Align software investments with the needs of the business. Whether you are interested in software development using RUP, OpenUP, or other agile processes, this book will help you reduce the anxiety and cost associated with software improvement by providing an easy, non-intrusive path toward improved results—without overwhelming you and your team.


Software Engineering (Sie) 7E

A Practical Guide to Testing Object-oriented Software A catalog of solutions to commonly occurring design problems, presenting 23 patterns that allow designers to create flexible and reusable designs for object-oriented software. Describes the circumstances in which each pattern is applicable, and discusses the consequences and trade-offs of using the pattern within a larger design. Patterns are compiled from real systems, and include code for implementation in object-oriented programming languages like C++ and Smalltalk. Includes a bibliography. Annotation copyright by Book News, Inc., Portland, OR

Agent-Oriented Software Engineering This book covers the essential knowledge and skills needed by a student who is specializing in software engineering. Readers will learn principles of object orientation, software development, software modeling, software design, requirements analysis, and testing. The use of the Unified Modelling Language to develop software is taught in depth. Many concepts are illustrated using complete examples, with code written in Java.

Advanced Use Case Modeling "A refreshingly new approach toward improving use-case modeling by fortifying it with aspect orientation." —Ramanivas Laddad, author of Aspectj in Action "Since the 1980s, use cases have been a way to bring users into software design, but translating use cases into software has been an art, at best, because user goods often don't respect code boundaries. Now that aspect-oriented programming (AOP) can express crosscutting concerns directly in code, the man who developed use cases has proposed step-by-step methods for recognizing crosscutting concerns in use cases and writing the code in separate modules. If these methods are at all fruitful in your design and development practice, they
will make a big difference in software quality for developers and users alike. --Wes Isberg, AspectJ team member

This book not only provides ideas and examples of what aspect-oriented software development is but how it can be utilized in a real development project. --Michael Ward, ThoughtWorks, Inc.

"No system has ever been designed from scratch perfectly; every system is composed of features layered on top of features that accumulate over time. Conventional design techniques do not handle this well, and over time the integrity of most systems degrades as a result. For the first time, here is a set of techniques that facilitates composition of behavior that not only allows systems to be defined in terms of layered functionality but composition is at the very heart of the approach. This book is an important advance in modern methodology and is certain to influence the direction of software engineering in the next decade, just as Object-Oriented Software Engineering influenced the last." --Kurt Bittner, IBM Corporation

Use cases are an excellent means to capture system requirements and drive a user-centric view of system development and testing. This book offers a comprehensive guide on explicit use-case-driven development from early requirements modeling to design and implementation. It provides a simple yet rich set of guidelines to realize use-case models using aspect-oriented design and programming. It is a valuable resource to researchers and practitioners alike. --Dr. Awais Rashid, Lancaster University, U.K., and author of Aspect-Oriented Database Systems

"AOSD is important technology that will help developers produce better systems. Unfortunately, it has not been obvious how to integrate AOSD across a project's lifecycle. This book shatters that barrier, providing concrete examples on how to use AOSD from requirements analysis through testing." --Charles B. Haley, research fellow, The Open University, U.K.

Aspect-oriented programming (AOP) is a revolutionary new way to think about software engineering. AOP was introduced to address crosscutting concerns such as security, logging, persistence, debugging, tracing, distribution, performance monitoring, and exception handling in a more effective manner. Unlike conventional development techniques, which scatter the implementation of each concern into multiple classes, aspect-oriented programming localizes them. Aspect-oriented software development (AOSD) uses this approach to create a better modularity for functional and nonfunctional requirements, platform specifics, and more, allowing you to build more understandable systems that are easier to configure and extend to meet the evolving needs of stakeholders. In this highly anticipated new book, Ivar Jacobson and Pan-Wei Ng demonstrate how to apply use cases—a mature and systematic approach to focusing on stakeholder concerns—and aspect-orientation in building robust and extensible systems. Throughout the book, the authors employ a single, real-world example of a hotel management information system to make the described theories and practices concrete and understandable. The authors show how to identify, design, implement, test, and refactor use-case modules, as well as extend them. They also demonstrate how to design use-case modules with the Unified Modeling Language (UML)—emphasizing enhancements made in UML 2.0—and how to achieve use-case modularity using aspect technologies, notably AspectJ. Key topics include Making the case for use cases and aspects Capturing and modeling concerns with use cases Keeping concerns separate with use-case modules Modeling use-cases slices and aspects using the newest extensions to the UML notation Applying use cases and aspects in projects Whatever your level of experience with aspect-oriented programming, Aspect-Oriented Software Development with Use Cases will teach you how to develop better software by embracing the paradigm shift to AOSD. Scenario-Based Design A guide on how to reverse engineer legacy systems to understand their problems, and then reengineer those systems to meet new demands. It uses patterns to clarify and explain the process of understanding large code bases, hence transforming them to meet new requirements.

Systems Engineering with SysML/UML This practical new book provides much-needed, practical, hands-on experience capturing analysis and design in UML. It holds the hands of engineers making the difficult leap from developing in C to the higher-level and more robust Unified Modeling Language, thereby supporting professional development for engineers looking to broaden their skill-sets in order to become more saleable in the job market. It provides a laboratory environment through a series of progressively more complex exercises that act as building blocks, illustrating the various aspects of UML and its application to real-time and embedded systems. With its focus on gaining proficiency, it goes a significant step beyond basic UML overviews, providing both comprehensive methodology and the best level of supporting exercises available on the market. Each exercise has a matching solution which is thoroughly explained step-by-step in the back of the book. The techniques used to solve these problems come from the author’s decades of experience designing and constructing real-time systems. After the exercises have been successfully completed, the book will act as a desk reference for engineers, reminding them of how many of the problems they face in their designs can be solved. Tutorial style text with keen focus on in-depth presentation and solution of real-world example problems Highly popular, respected and experienced author

Developing Object-oriented Software Based on Objectory which is the first commercially available comprehensive object-oriented process for developing large scale industrial systems.

Object-Oriented Engineering "This book isn't just another introduction to use cases. The authors have used their wealth of experience to produce an excellent and insightful collection of detailed examples, explanations, and advice on how to work with use cases." --Maria Ericsson

The toughest challenge in building a software system that meets the needs of your audience lies in clearly understanding the problems that the system must solve. Advanced Use Case Modeling presents a framework for discovering, identifying, and modeling the problem that the software system will ultimately solve. Software developers often employ use cases to specify what should be performed by the system they're constructing. Although use case-driven analysis, design, and testing of software systems has become increasingly popular, little has been written on the role of use cases in the complete software cycle. This
book fills that need by describing how to create use case models for complex software development projects, using practical examples to explain conceptual information. The authors extend the work of software visionary Ivar Jacobson, using the Unified Modeling Language (UML) as the notation to describe the book’s models. Aimed primarily at software professionals, Advanced Use Case Modeling also includes information that relates use case technique to business processes. This book presents a process for creating and maintaining use case models in a framework that can be fully customized for your organization. The authors, pioneers in the application of use cases in software development, bring their extensive experience to cover topics such as: A process model for applying a use case model How to keep your use case modeling effort on track Tips and pitfalls in use case modeling How to organize your use case model for large-system development Similarities between Advanced Use Case Modeling and the Rational Unified Process framework Effect of use cases on user interface design Guidelines for quality use case modeling

Managing Iterative Software Development Projects

This innovative book recognizes the need within the object-oriented community for a book that goes beyond the tools and techniques of the typical methodology book. In Analysis Patterns: Reusable Object Models, Martin Fowler focuses on the end result of object-oriented analysis and design—the models themselves. He shares with you his wealth of object modeling experience and his keen eye for identifying repeating problems and transforming them into reusable models. Analysis Patterns provides a catalogue of patterns that have emerged in a wide range of domains including trading, measurement, accounting and organizational relationships. Recognizing that conceptual patterns cannot exist in isolation, the author also presents a series of “support patterns” that discuss how to turn conceptual models into software that in turn fits into an architecture for a large information system. Included in each pattern is the reasoning behind their design, rules for when they should and should not be used, and tips for implementation. The examples presented in this book comprise a cookbook of useful models and insight into the skill of reuse that will improve analysis, modeling and implementation.

Object-oriented Reengineering Patterns

Object-oriented Software Engineering

One of the most important reasons for the current intensity of interest in agent technology is that the concept of an agent, as an autonomous system capable of interacting with other agents in order to satisfy its design objectives, is a natural one for software designers. Just as we can understand many systems as being composed of essentially passive objects, which have a state and upon which we can perform operations, so we can understand many others as being made up of interacting semi-autonomous agents. This book brings together revised versions of papers presented at the First International Workshop on Agent-Oriented Software Engineering, AOSE 2000, held in Limerick, Ireland, in conjunction with ICSE 2000, and several invited papers. As a comprehensive and competent overview of agent-oriented software engineering, the book addresses software engineers interested in the new paradigm and technology as well as research and development professionals active in agent technology.

Handbook on Architectures of Information Systems

Growing out of a historic workshop sponsored by IBM, this book brings together contributions from many of the leading figures in the field of human-computer interaction and object-oriented software engineering. The first book-length work devoted entirely to the subject of use-oriented design representations—or scenarios—it discusses an array of scenario-based design approaches and demonstrates their practical applications across the system development life cycle, from requirements analysis and software design, to documentation, training, and prototype evaluation. Translates the latest research findings into techniques that readers can immediately use to enhance the effectiveness of user-interface design and object-oriented software engineering design Features contributions from the top names in the field, including Rebecca Wirfs-Brock, Ivar Jacobson, Jakob Nielsen, Tom Carey, Allan MacLean, Scott Robertson, Morten Kyng, Mary Beth Rosson, and others Assesses the effectiveness of various scenario-based design approaches in dealing with a wide range of design problems and in different types and sizes of organizations Packed with case studies and enlightening illustrations

Software Reuse

This book provides an introduction to the understanding and use of object-oriented methodologies for engineering problem solving with a specific emphasis on analysis and design. Object-oriented programming is a general computer language methodology. The name comes from the focus on describing problems in terms of objects, both physical and conceptual.

The Road to the Unified Software Development Process

More than ever, mission-critical and business-critical applications depend on object-oriented (OO) software. Testing techniques tailored to the unique challenges of OO technology are necessary to achieve high reliability and quality. “Testing Object-Oriented Systems: Models, Patterns, and Tools” is an authoritative guide to designing and automating test suites for OO applications. This comprehensive book explains why testing must be model-based and provides in-depth coverage of techniques to develop testable models from state machines, combinational logic, and the Unified Modeling Language (UML). It introduces the test design pattern and presents 37 patterns that explain how to design responsibility-based test suites, how to tailor integration and regression testing for OO code, how to test reusable components and frameworks, and how to develop highly effective test suites from use cases. Effective testing must be automated and must leverage object technology. The author describes how to design and code specification-based assertions to offset testability losses due to inheritance and polymorphism. Fifteen micro-patterns present oracle strategies—practical solutions for one of the hardest
problems in test design. Seventeen design patterns explain how to automate your test suites with a coherent OO test harness framework. The author provides thorough coverage of testing issues such as: The bug hazards of OO programming and differences from testing procedural code How to design responsibility-based tests for classes, clusters, and subsystems using class invariants, interface data flows, hierarchic state machines, class associations, and scenario analysis How to support reuse by effective testing of abstract classes, generic classes, components, and frameworks How to choose an integration strategy that supports iterative and incremental development How to achieve comprehensive system testing with testable use cases How to choose a regression test approach How to develop expected test results and evaluate the post-test state of an object How to automate testing with assertions, OO test drivers, stubs, and test frameworks Real-world experience, world-class best practices, and the latest research in object-oriented testing are included. Practical examples illustrate test design and test automation for Ada 95, C++, Eiffel, Java, Objective-C, and Smalltalk. The UML is used throughout, but the test design patterns apply to systems developed with any OO language or methodology. 0201809389804062001

Designing Object-oriented Software This book walks developers through every step of the object-oriented development process, showing how to tailor and document the development process that is ideal for their organizations. This book shows how to tailor your own object-oriented development process — a process that delivers software more effectively and virtually documents itself. It presents new techniques for requirements gathering, performing initial object-oriented analysis, transitioning to object-oriented design from procedural environments, implementing a design, and validating the results. It includes comprehensive templates and examples for each phase of the lifecycle. It also presents a detailed case study of a complete project, with example workbook and work products. All object-oriented developers, regardless of the languages and environments they utilize.

Real Time UML Workshop for Embedded Systems This groundbreaking book presents a complete methodology for adaptive programming in any object-oriented programming language. Lieberherr's adaptive method signals a new approach to object-oriented program design that goes beyond object encapsulation and hard-coded navigation paths to achieve more flexible interactions among objects. Programmers using this method work at a higher, schematic level of abstraction; graph notation represents the class structure and a "propagation pattern" language tells how to distribute meaningful methods - including navigation - across the structure. Using this method, programmers can easily adapt and modify programs as they evolve. This book can be used with any object-oriented programming environment, or with the Demeter Tools Version 5.5, a complete, professional software system for creating and maintaining adaptive programs.

Object-oriented Software Engineering Introducing the reuse-driven software engineering business; Architectural style; Processes; Organizing a reuse business.

Moving to the Cloud Object-Oriented Software Engineering: An Agile Unified Methodology by David Kung presents a step-by-step methodology that integrates modeling and design, UML, patterns, test-driven development, quality assurance, configuration management, and agile principles throughout the life cycle. The overall approach is casual and easy to follow, with many practical examples that show the theory at work. The author uses his experiences as well as real-world stories to help the reader understand software design principles, patterns, and other software engineering concepts. The book also provides stimulating exercises that go far beyond the type of question that can be answered by simply copying portions of the text.


Use Case Driven Object Modeling with UML Theory and Practice For courses in Software Engineering, Software Development, or Object-Oriented Design and Analysis at the Junior/Senior or Graduate level. This text can also be utilized in short technical courses or in short, intensive management courses. Shows students how to use both the principles of software engineering and the practices of various object-oriented tools, processes, and products. Using a step-by-step case study to illustrate the concepts and topics in each chapter, Bruegge and Dutoit emphasize learning object-oriented software engineer through practical experience: students can apply the techniques learned in class by implementing a real-world software project. The third edition addresses new trends, in particular agile project management (Chapter 14 Project Management) and agile methodologies (Chapter 16 Methodologies).

Object-Oriented Analysis and Design with Applications The first course in software engineering is the most critical. Education must start from an understanding of the heart of software development, from familiar ground that is common to all software development endeavors. This book is an in-depth introduction to software engineering that uses a systematic, universal kernel to teach the essential elements of all software engineering methods. This kernel, Essence, is a vocabulary for defining methods and practices. Essence was envisioned and originally created by Ivar Jacobson and his colleagues, developed by Software Engineering Method and Theory (SEMAT) and approved by The Object Management Group (OMG) as a standard in 2014. Essence is a practice-independent framework for thinking and reasoning about the practices we have and the practices we need. Essence establishes a shared and standard understanding of what is at the heart of software development. Essence is agnostic to any particular method, lifecycle independent, programming language independent,
concise, scalable, extensible, and formally specified. Essence frees the practices from their method prisons. The first part of the book describes Essence, the essential elements to work with, the essential things to do and the essential competencies you need when developing software. The other three parts describe more and more advanced use cases of Essence. Using real but manageable examples, it covers the fundamentals of Essence and the innovative use of serious games to support software engineering. It also explains how current practices such as user stories, use cases, Scrum, and micro-services can be described using Essence, and illustrates how their activities can be represented using the Essence notions of cards and checklists. The fourth part of the book offers a vision how Essence can be scaled to support large, complex systems engineering. Essence is supported by an ecosystem developed and maintained by a community of experienced people worldwide. From this ecosystem, professors and students can select what they need and create their own way of working, thus learning how to create ONE way of working that matches the particular situation and needs.

The Unified Modeling Language Reference Manual "Head First Object Oriented Analysis and Design is a refreshing look at subject of OOAD. What sets this book apart is its focus on learning. The authors have made the content of OOAD accessible, usable for the practitioner." Ivar Jacobson, Ivar Jacobson Consulting "I just finished reading HF OOA&D and I loved it! The thing I liked most about this book was its focus on why we do OOA&D-to write great software!" Kyle Brown, Distinguished Engineer, IBM "Hidden behind the funny pictures and crazy fonts is a serious, intelligent, extremely well-crafted presentation of OO Analysis and Design. As I read the book, I felt like I was looking over the shoulder of an expert designer who was explaining to me what issues were important at each step, and why." Edward Sciore, Associate Professor, Computer Science Department, Boston College Tired of reading Object Oriented Analysis and Design books that only makes sense after you're an expert? You've heard OOA&D can help you write great software every time-software that makes your boss happy, your customers satisfied and gives you more time to do what makes you happy. But how? Head First Object-Oriented Analysis & Design shows you how to analyze, design, and write serious object-oriented software: software that's easy to reuse, maintain, and extend; software that doesn't hurt your head; software that lets you add new features without breaking the old ones. Inside you will learn how to: Use OO principles like encapsulation and delegation to build applications that are flexible Apply the Open-Closed Principle (OCP) and the Single Responsibility Principle (SRP) to promote reuse of your code Leverage the power of design patterns to solve your problems more efficiently Use UML, use cases, and diagrams to ensure that all stakeholders are communicating clearly to help you deliver the right software that meets everyone's needs. By exploiting how your brain works, Head First Object-Oriented Analysis & Design compresses the time it takes to learn and retain complex information. Expect to have fun, expect to learn, expect to be writing great software consistently by the time you're finished reading this!

The Essentials of Modern Software Engineering UML, the Universal Modeling Language, was the first programming language designed to fulfill the requirement for "universality." However, it is a software-specific language, and does not support the needs of engineers designing from the broader systems-based perspective. Therefore, SysML was created. It has been steadily gaining popularity, and many companies, especially in the heavily-regulated Defense, Automotive, Aerospace, Medical Device and Telecoms industries, are already using SysML, or are planning to switch over to it in the near future. However, little information is currently available on the market regarding SysML. Its use is just on the crest of becoming a widespread phenomenon, and so thousands of software engineers are now beginning to look for training and resources. This book will serve as the one-stop, definitive guide that provide an introduction to SysML, and instruction on how to implement it, for all these new users. *SysML is the latest emerging programming language--250,000 estimated software systems engineers are using it in the US alone!* The first available book on SysML in English *Insider information! The author is a member of the SysML working group and has written sections of the specification *Special focus comparing SysML and UML, and explaining how both can work together

UML Distilled "If you are a serious user of UML, there is no other book quite like this one. I have been involved with the UML specification process for some time, but I still found myself learning things while reading through this book-especially on the changes and new capabilities that have come with UML." -Ed Seidewitz, Chief Architect, IntelliData Technologies Corporation The latest version of the Unified Modeling Language-UML 2.0 has increased its capabilities as the standard notation for modeling software-intensive systems. Like most standards documents, however, the official UML specification is difficult to read and navigate. In addition, UML 2.0 is far more complex than previous versions, making a thorough reference book more essential than ever. In this significantly updated and expanded edition of the definitive reference to the standard, James Rumbaugh, Ivar Jacobson, and Grady Booch-the UML's creators-clearly and completely describe UML concepts, including major revisions to sequence diagrams, activity models, state machines, components, internal structure of classes and components, and profiles. Whether you are capturing requirements, developing software architectures, designing implementations, or trying to understand existing systems, this is the book for you. Highlights include: Alphabetical dictionary of articles covering every UML concept Integrated summary of UML concepts by diagram type Two-color diagrams with extensive annotations in blue Thorough coverage of both semantics and notation, separated in each article for easy reference Further explanations of concepts whose meaning or purpose is obscure in the original specifications Discussion sections offering usage advice and additional insight into tricky concepts Notation summary, with references to individual articles An enhanced online index available on the book's web site allowing readers to quickly and easily search the entire text for specific topics The result is an indispensable resource for anyone who needs to understand the inner workings of the industry standard modeling language.
The Unified Modeling Language User Guide For nearly ten years, the Unified Modeling Language (UML) has been the industry standard for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. As the de facto standard modeling language, the UML facilitates communication and reduces confusion among project stakeholders. The recent standardization of UML 2.0 has further extended the language's scope and viability. Its inherent expressiveness allows users to model everything from enterprise information systems and distributed Web-based applications to real-time embedded systems. In this eagerly anticipated revision of the best-selling and definitive guide to the use of the UML, the creators of the language provide a tutorial to its core aspects in a two-color format designed to facilitate learning. Starting with an overview of the UML, the book explains the language gradually by introducing a few concepts and notations in each chapter. It also illustrates the application of the UML to complex modeling problems across a variety of application domains. The in-depth coverage and example-driven approach that made the first edition of The Unified Modeling Language User Guide an indispensable resource remain unchanged. However, content has been thoroughly updated to reflect changes to notation and usage required by UML 2.0. Highlights include: A new chapter on components and internal structure, including significant new capabilities for building encapsulated designs; New details and updated coverage of provided and required interfaces, collaborations, and UML profiles; Additions and changes to discussions of sequence diagrams, activity diagrams, and more Coverage of many other changes introduced by the UML 2.0 specification; With this essential guide, you will quickly get up to speed on the latest features of the industry standard modeling language and be able to apply them to your next software project.

The Unified Software Development Process "This thoroughly updated text teaches students or industry R & D practitioners to successfully navigate the terrain for building and maintaining large, complex software systems. The authors introduce the basic skills needed for a developer to apply software engineering techniques. Next, they focus on methods and technologies that enable developers to specify, design, and implement complex systems. Finally, the authors show how to support the system changes throughout the software life cycle."--BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

Object-oriented Software Engineering Object-Oriented Design with Applications has long been the essential reference to object-oriented technology, which, in turn, has evolved to join the mainstream of industrial-strength software development. In this third edition—the first revision in 13 years—readers can learn to apply object-oriented methods using new paradigms such as Java, the Unified Modeling Language (UML) 2.0, and .NET. The authors draw upon their rich and varied experience to offer improved methods for object development and numerous examples that tackle the complex problems faced by software engineers, including systems architecture, data acquisition, cryptoanalysis, control systems, and Web development. They illustrate essential concepts, explain the method, and show successful applications in a variety of fields. You’ll also find pragmatic advice on a host of issues, including classification, implementation strategies, and cost-effective project management. New to this new edition are An introduction to the new UML 2.0, from the notation's most fundamental and advanced elements with an emphasis on key changes; New domains and contexts; A greatly enhanced focus on modeling—with five chapters that each delve into one phase of the overall development lifecycle. Fresh approaches to reasoning about complex systems; An examination of the conceptual foundation of the widely misunderstood fundamental elements of the object model, such as abstraction, encapsulation, modularity, and hierarchy; How to allocate the resources of a team of developers and manage the risks associated with developing complex software systems; An appendix on object-oriented programming languages; This is the seminal text for anyone who wishes to use object-oriented technology to manage the complexity inherent in many kinds of systems. Sidebars Preface Acknowledgments About the Authors Section I: Concepts Chapter 1: Complexity Chapter 2: The Object Model Chapter 3: Classes and Objects Chapter 4: Classification Section II: Method Chapter 5: Notation Chapter 6: Process Chapter 7: Pragmatics Chapter 8: System Architecture: Satellite-Based Navigation Chapter 9: Control System: Traffic Management Chapter 10: Artificial Intelligence: Cryptanalysis Chapter 11: Data Acquisition: Weather Monitoring Station Chapter 12: Web Application: Vacation Tracking System Appendix A: Object-Oriented Programming Languages Appendix B: Further Reading Notes Glossary Classified Bibliography Index

Head First Object-Oriented Analysis and Design Addresses critical software engineering issues, showing how an object-oriented approach can provide much improved solutions over other methods. Designed as a technology tool.

Design Patterns Provides information on analyzing, designing, and writing object-oriented software.

The Essence of Software Engineering Venturing beyond C++ programming, this text shows how to engineer software products using object-oriented principles. It covers gathering requirements, specifying objects, object verification, defining relations between objects, translating object design into code, object testing, and software maintenance.

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