"Unified Modeling Language (UML), Unified Process (UP), and other information modeling methods are addressed in this scholarly consideration of the analysis, design, and development of web-based and enterprise applications. The most current research on conceptual, theoretical, and empirical issues of modeling for online business and static information is provided."

The Unified Modeling Language is the new official OMG standard for object-oriented modeling.
languages. This volume contains papers presented during the 1st GROOM-workshop on the Unified Modeling Language (UML). GROOM (Grundlagen objektorientierter Modellierung) is a working group of the Gesellschaft für Informatik (GI), the German Society of Computer Science. The papers are presented in three chapters as follows: UML vs. other approaches - business process modeling and applications - technical aspects and concepts. Researchers and practitioners interested in object-oriented software development, analysis, and design of software systems, and standardization efforts in the field of object technology will benefit from this volume.

Explore the fundamental concepts behind modern, object-oriented software design best practices. Learn how to work with UML to approach software development more efficiently. In this comprehensive book, instructor Károly Nyisztor helps to familiarize you with the fundamentals of object-oriented design and analysis. He introduces each concept using simple terms, avoiding confusing jargon. He focuses on the practical application, using hands-on examples you can use for reference and practice. Throughout the book, Károly walks you through several examples to familiarize yourself with software design and UML. Plus, he walks you through a case study to review all the steps of designing a real software system from start to finish. Topics include:

- Understanding software development methodologies
- Choosing the right methodology: Waterfall vs. Agile
- Fundamental object-Orientation concepts:
  - Abstraction, Polymorphism and more
  - Collecting requirements
  - Mapping requirements to technical descriptions
- Unified Modeling Language (UML):
  - Use case, class, sequence, activity, and state diagrams
- Designing a Note-Taking App from scratch

You will acquire professional and technical skills together with an understanding of object-orientation principles and concepts. After completing this book, you'll be able to understand the inner workings of object-oriented software systems. You will communicate easily and effectively with other developers using object-orientation terms and UML diagrams.

About the Author
Károly Nyisztor is a veteran mobile developer and instructor. He has built several successful iOS apps and games—most of which were featured by Apple—and is the founder at LEAKKA, a software development, and tech consulting company. He's worked with companies such as Apple, Siemens,
SAP, and Zen Studios. Currently, he spends most of his days as a professional software engineer and IT architect. In addition, he teaches object-oriented software design, iOS, Swift, Objective-C, and UML. As an instructor, he aims to share his 20+ years of software development expertise and change the lives of students throughout the world. He’s passionate about helping people reveal hidden talents, and guide them into the world of startups and programming. You can find his courses and books on all major platforms including Amazon, Lynda, LinkedIn Learning, Pluralsight, Udemy, and iTunes.

This book provides an effective overview of the state-of-the-art in software engineering, with a projection of the future of the discipline. It includes 13 papers, written by leading researchers in the respective fields, on important topics like model-driven software development, programming language design, microservices, software reliability, model checking and simulation. The papers are edited and extended versions of the presentations at the PAUSE symposium, which marked the completion of 14 years of work at the Chair of Software Engineering at ETH Zurich. In this inspiring context, some of the greatest minds in the field extensively discussed the past, present and future of software engineering. It guides readers on a voyage of discovery through the discipline of software engineering today, offering unique food for thought for researchers and professionals, and inspiring future research and development.

The first of two UML works written by the creators of UML, this book introduces the core 80 percent of UML, approaching it in a layered fashion and providing numerous examples of its application.

As part of the UML standard OCL has been adopted by both professionals in industry and by academic researchers and is one of the most widely used languages for expressing object-oriented system properties. This book contains key contributions to the development of OCL. Most papers are developments of work reported at different conferences and workshops. This unique compilation addresses many important issues faced by advanced professionals and
researchers in object modeling like e.g. real-time constraints, type checking, and constraint modeling.

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.

Topological UML Modeling: An Improved Approach for Domain Modeling and Software Development presents a specification for Topological UML® that combines the formalism of the Topological Functioning Model (TFM) mathematical topology with a specified software analysis and design
method. The analysis of problem domain and design of desired solutions within software development processes has a major impact on the achieved result – developed software. While there are many tools and different techniques to create detailed specifications of the solution, the proper analysis of problem domain functioning is ignored or covered insufficiently. The design of object-oriented software has been led for many years by the Unified Modeling Language (UML®), an approved industry standard modeling notation for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system, and this comprehensive book shines new light on the many advances in the field. Presents an approach to formally define, analyze, and verify functionality of existing processes and desired processes to track incomplete or incorrect functional requirements Describes the path from functional and nonfunctional requirements specification to software design with step-by-step creation and transformation of diagrams and models with very early capturing of security requirements for software systems. Defines all modeling constructs as extensions to UML®, thus creating a new UML® profile which can be implemented in existing UML® modeling tools and toolsets

The acclaimed beginner's book on object technology now presents UML 2.0, Agile Modeling, and the latest in object development techniques.

The expert guide to building Ruby on Rails applications Ruby on Rails strips complexity from the development process, enabling professional developers to focus on what matters most: delivering business value. Now, for the first time, there’s a comprehensive, authoritative guide to building production-quality software with Rails. Pioneering Rails developer Obie Fernandez and a team of experts illuminate the entire Rails API, along with the Ruby idioms, design approaches, libraries, and plug-ins that make Rails so valuable. Drawing on their unsurpassed experience, they address the real challenges development teams face, showing how to use Rails’ tools and best practices to maximize productivity and build polished applications users will enjoy. Using detailed code examples, Obie systematically covers Rails’ key capabilities and subsystems. He presents advanced programming techniques,
introduces open source libraries that facilitate easy Rails adoption, and offers important insights into testing and production deployment. Dive deep into the Rails codebase together, discovering why Rails behaves as it does—and how to make it behave the way you want it to. This book will help you Increase your productivity as a web developer Realize the overall joy of programming with Ruby on Rails Learn what’s new in Rails 2.0 Drive design and protect long-term maintainability with TestUnit and RSpec Understand and manage complex program flow in Rails controllers Leverage Rails’ support for designing REST-compliant APIs Master sophisticated Rails routing concepts and techniques Examine and troubleshoot Rails routing Make the most of ActiveRecord object-relational mapping Utilize Ajax within your Rails applications Incorporate logins and authentication into your application Extend Rails with the best third-party plug-ins and write your own Integrate email services into your applications with ActionMailer Choose the right Rails production configurations Streamline deployment with Capistrano

Conquer your fear and anxiety learning how the concepts behind object-oriented design apply to the ABAP programming environment. Through simple examples and metaphors this book demystifies the object-oriented programming model. Object-Oriented Design with ABAP presents a bridge from the familiar procedural style of ABAP to the unfamiliar object-oriented style, taking you by the hand and leading you through the difficulties associated with learning these concepts, covering not only the nuances of using object-oriented principles in ABAP software design but also revealing the reasons why these concepts have become embraced throughout the software development industry. More than simply knowing how to use various object-oriented techniques, you'll also be able to determine whether a technique is applicable to the task the software addresses. This book: Shows how object-oriented principles apply to ABAP program design Provides the basics for creating component design diagrams Teaches how to incorporate design patterns in ABAP programs What You’ll Learn Write ABAP code using the object-oriented model as comfortably and easily as using the procedural model Create ABAP design diagrams based on the Unified Modeling Language Implement object-oriented design patterns into ABAP programs Reap the benefits of spending less time designing
and maintaining ABAP programs Recognize those situations where design patterns can be most helpful Avoid long and exhausting searches for the cause of bugs in ABAP programs Who This Book Is For Experienced ABAP programmers who remain unfamiliar with the design potential presented by the object-oriented aspect of the language

This new book is the definitive primer for UML, and starts with the foundational concepts of object-orientation in order to provide the proper context for explaining UML.

More than 300,000 developers have benefited from past editions of UML Distilled. This third edition is the best resource for quick, no-nonsense insights into understanding and using UML 2.0 and prior versions of the UML. Some readers will want to quickly get up to speed with the UML 2.0 and learn the essentials of the UML. Others will use this book as a handy, quick reference to the most common parts of the UML. The author delivers on both of these promises in a short, concise, and focused presentation. This book describes all the major UML diagram types, what they're used for, and the basic notation involved in creating and deciphering them. These diagrams include class, sequence, object, package, deployment, use case, state machine, activity, communication, composite structure, component, interaction overview, and timing diagrams. The examples are clear and the explanations cut to the fundamental design logic. Includes a quick reference to the most useful parts of the UML notation and a useful summary of diagram types that were added to the UML 2.0. If you are like most developers, you don't have time to keep up with all the new innovations in software engineering. This new edition of Fowler's classic work gets you acquainted with some of the best thinking about efficient object-oriented software design using the UML--in a convenient format that will be essential to anyone who designs software professionally.


Thoroughly updated and fully compliant with Rational Rose 2002, the latest release of the
industry's most popular software modeling tool, this edition contains simplified, useful case studies and helps the reader understand the core concepts of modeling and how to use UML effectively.

This book constitutes the thoroughly refereed post-workshop proceedings of the International Workshop on the Unified Modeling Language, '98: Beyond the Notation, held in Mulhouse, France in June 1998. The 33 revised full papers presented were carefully selected by the editorial committee after two rounds of reviewing. The volume presents state-of-the-art R&D results as well as advanced applications; it is indispensable reading for anybody seriously interested in UML.

This comprehensive guide has been fully revised to cover UML 2.0, today's standard method for modelling software systems. Filled with concise information, it's been crafted to help IT professionals read, create, and understand system artefacts expressed using UML. Includes an example-rich tutorial for those who need familiarizing with the system.

"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 A hyperlinked version of the book in Adobe Reader format on CD-ROM, an excellent resource for browsing or searching the text for specific information 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 Systems Modeling Language (SysML) extends UML with powerful systems engineering capabilities for modeling a wider spectrum of systems and capturing all aspects of a system's design. SysML Distilled is the first clear, concise guide for everyone who wants to start creating effective SysML models. (Drawing on his pioneering experience at Lockheed Martin and NASA, Lenny Delligatti illuminates SysML's core components and provides practical advice to help you create good models and good designs. Delligatti begins with an easy-to-understand overview of Model-Based Systems Engineering (MBSE) and an explanation of how SysML enables effective system specification, analysis, design, optimization, verification, and validation. Next, he shows how to use all nine types of SysML diagrams, even if you have no previous experience with modeling languages. A case study running through the text demonstrates the use of SysML in modeling a complex, real-world sociotechnical system. Modeled after Martin Fowler's classic UML Distilled, Delligatti's indispensable guide quickly teaches you what you need to know to get started and helps you deepen your knowledge incrementally as the need arises. Like SysML itself, the book is method independent and is designed to support whatever processes, procedures, and tools you already use. Coverage Includes Why SysML was created and the business case for using it Quickly putting SysML to practical use What to know before you
start a SysML modeling project Essential concepts that apply to all SysML diagrams SysML
diagram elements and relationships Diagramming block definitions, internal structures, use
cases, activities, interactions, state machines, constraints, requirements, and packages
Using allocations to define mappings among elements across a model SysML notation tables,
version changes, and sources for more information

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

"This book manages to convey the practical use of UML 2 in clear and understandable terms
with many examples and guidelines. Even for people not working with the Unified Process, the
book is still of great use. UML 2 and the Unified Process, Second Edition is a must-read for
every UML 2 beginner and a helpful guide and reference for the experienced practitioner."
--Roland Leibundgut, Technical Director, Zuehlke Engineering Ltd. "This book is a good
starting point for organizations and individuals who are adopting UP and need to understand
how to provide visualization of the different aspects needed to satisfy it. " --Eric Naiburg,
Market Manager, Desktop Products, IBM Rational Software This thoroughly revised edition
provides an indispensable and practical guide to the complex process of object-oriented
analysis and design using UML 2. It describes how the process of OO analysis and design fits
into the software development lifecycle as defined by the Unified Process (UP). UML 2 and the
Unified Process contains a wealth of practical, powerful, and useful techniques that you can apply immediately. As you progress through the text, you will learn OO analysis and design techniques, UML syntax and semantics, and the relevant aspects of the UP. The book provides you with an accurate and succinct summary of both UML and UP from the point of view of the OO analyst and designer. This book provides Chapter roadmaps, detailed diagrams, and margin notes allowing you to focus on your needs Outline summaries for each chapter, making it ideal for revision, and a comprehensive index that can be used as a reference New to this edition: Completely revised and updated for UML 2 syntax Easy to understand explanations of the new UML 2 semantics More real-world examples A new section on the Object Constraint Language (OCL) Introductory material on the OMG's Model Driven Architecture (MDA) The accompanying website provides A complete example of a simple e-commerce system Open source tools for requirements engineering and use case modeling Industrial-strength UML course materials based on the book

UML is the industry standard notational language. Updated to include coverage of UML 2.0, this text helps the reader master the vocabulary, rules and idioms of the UML, as well as understand what the UML is and what it is not.

This book contains a range of essays on topics in the emerging field of 'constitutional political economy'. This field of enquiry is strongly associated with the name of James M. Buchanan whose research program has been the point of departure for this field. The essays are a selection of those written by colleagues and researchers in the field to honor Buchanan on the occasion of his 80th birthday. They cover a wide range of topics but fall primarily into two sets: one set dealing with methodological aspects of the c.p.e. approach; the other dealing with specific applications in a variety of policy areas, ranging from 'economic transformation' to monetary policy regimes to health care. One particular issue in the methodological area relates to the model of motivation used – and more especially, the role of 'morality' in economic and political behavior. The five essays on this topic make up one of the sections of the book, and justify reference to the issue in the volume's title.
Larman covers how to investigate requirements, create solutions and then translate designs into code, showing developers how to make practical use of the most significant recent developments. A summary of UML notation is included.

With its clear introduction to the Unified Modeling Language (UML) 2.0, this tutorial offers a solid understanding of each topic, covering foundational concepts of object-orientation and an introduction to each of the UML diagram types.

The first UML book to cover Rational Rose 2000, this brand-new edition reviews the three key interrelated components of state-of-the-art software system design: the Rational Unified process, the Unified Modeling Language, and Rational Rose 2000. Then, through a simplified case study, it walks developers through a real-world business system. Includes screen shots demonstrating UML at work in the Rational Rose 2000 modeling tool.

This book was first published in 1980.

Object-Oriented Design with UML and Java provides an integrated introduction to object-oriented design with the Unified Modelling Language (UML) and the Java programming language. The book demonstrates how Java applications, no matter how small, can benefit from some design during their construction. Fully road-tested by students on the authors' own courses, the book shows how these complementary technologies can be used effectively to create quality software. It requires no prior knowledge of object orientation, though readers must have some experience of Java or other high level programming language. This book covers object technology; object-oriented analysis and design; and implementation of objects with Java. It includes two case studies dealing with library applications. The UML has been incorporated into a graphical design tool called ROME, which can be downloaded from the book's website. This object modelling environment allows readers to prepare and edit various UML diagrams. ROME can be used alongside a Java compiler to generate Java code from a UML class diagram.
then compile and run the resulting application for hands-on learning. This text would be a valuable resource for undergraduate students taking courses on O-O analysis and design, O-O modelling, Java programming, and modelling with UML. * Integrates design and implementation, using Java and UML * Includes case studies and exercises * Bridges the gap between programming texts and high level analysis books on design

OCUP 2 Certification Guide: Preparing for the OMG Certified UML 2.5 Professional 2 Foundation Exam both teaches UML® 2.5 and prepares candidates to become certified. UML® (Unified Modeling Language) is the most popular graphical language used by software analysts, designers, and developers to model, visualize, communicate, test, and document systems under development. UML® 2.5 has recently been released, and with it a new certification program for practitioners to enhance their current or future career opportunities. There are three exam levels: Foundation, Intermediate, and Advanced. The exam covered in this book, Foundation, is a prerequisite for the higher levels. Author Michael Jesse Chonoles is a lead participant in the current OCUP 2 program—not only in writing and reviewing all the questions, but also in designing the goals of the program. This book distills his experience in modeling, mentoring, and training. Because UML® is a sophisticated language, with 13 diagram types, capable of modeling any type of modern software system, it takes users some time to become proficient. This effective resource will explain the material in the Foundation exam and includes many practice questions for the candidate, including sample problems similar to those found in the exam, and detailed explanations of why correct answers are correct and why wrong answers are wrong. Written to prepare candidates for the OCUP 2 Foundation level exam while they learn UML® Illustrated with UML® diagrams to clarify every concept and technique Offers hints for studying and test-taking based on the specific nature and structure of the Foundation Level exam Includes practice exam material, sample questions and exercises, warnings, tips, and points to remember throughout
UML is a large and complex language, with many features in need of refinement or clarification, and there are different views about how to use UML to build systems. This book sheds light on such issues, by illustrating how UML can be used successfully in practice as well as identifying various problematic aspects of UML and suggesting possible solutions.

A Practical Guide to SysML: The Systems Modeling Language is a comprehensive guide to SysML for systems and software engineers. It provides an advanced and practical resource for modeling systems with SysML. The source describes the modeling language and offers information about employing SysML in transitioning an organization or project to model-based systems engineering. The book also presents various examples to help readers understand the OMG Systems Modeling Professional (OCSMP) Certification Program. The text is organized into four parts. The first part provides an overview of systems engineering. It explains the model-based approach by comparing it with the document-based approach and providing the modeling principles. The overview of SYSML is also discussed. The second part of the book covers a comprehensive description of the language. It discusses the main concepts of model organization, parametrics, blocks, use cases, interactions, requirements, allocations, and profiles. The third part presents examples that illustrate how SysML supports different model-based procedures. The last part discusses how to transition and deploy SysML into an organization or project. It explains the integration of SysML into a systems development environment. Furthermore, it describes the category of data that are exchanged between a SysML tool and other types of tools, and the types of exchange mechanisms that can be used. It also covers the criteria that must be considered when selecting a SysML. Software and systems engineers, programmers, IT practitioners, experts, and non-experts will find this book useful. *The authoritative guide for understanding and applying SysML *Authored by the foremost experts on the language *Language description, examples, and quick reference guide included

*Watch, listen, and learn as Grady Booch carefully describes key UML concepts with over 200 dynamic animated figures.*Cyber Classroom includes a fully-searchable electronic version of
the classic *The Unified Modeling Language User Guide*, the full text of the UML specification documents, PLUS a UML dictionary with over 600 hyperlinked terms *Also includes a Video Introduction to the UML by Grady Booch, over 300 practice questions to test your knowledge, hyperlinking, full-text searching, and more BONUS: Second CD-ROM includes fully searchable electronic version of *The Unified Modeling Language Reference Manual*. The worlds most authoritative UML training CD-ROM Now you can learn UML from the original designers: Grady Booch, James Rumbaugh, and Ivar Jacobson This training course includes the UML Multimedia Cyber Classroom CD-ROM, plus Rumbaugh/Jacobson/Boochs masterful *The Unified Modeling Language Reference Manual*. UML Multimedia Cyber Classroom CD-ROM*Over 300 practice questions to test your knowledge *200+ multimedia UML diagrams animate every key UML concept.*Expert insight straight from the original designers of UML applications *Find it fast CD-ROM includes fully-searchable copy of *The Unified Modeling Language User Guide*100% COMPREHENSIVE, 100% AUTHORITATIVE an expert UML modeler, including concepts, syntax, modeling techniques, and more: *Modeling: Fundamental principles and rationale*UML: Overview, conceptual model, architecture & development lifecycle*Classes: Basic & Advanced*Relationships: Basic & Advanced*Common Mechanisms*Diagrams, Class Diagrams, and Object Diagrams*Interfaces, Types, & Roles*Packages & Instances*Interactions & Interaction Diagrams*Use Cases & Use Case Diagrams*Activity Diagrams*Events & Signals*State Machines*Processes & Threads*Time & Space*Statechart Diagrams*Architectural Modeling: Components, Deployment & Collaborations*Patterns & Frameworks*Systems & Models*Hundreds of terms and concepts defined in detail-by the object-oriented modeling experts who created them*Large collection of 2-color UML diagrams, extensively annotated*Expert insight into UML views designed to help you integrate UMLs key constructs into a unified whole*Detailed reference guides to the UML metamodel, notation, and standard extensionsLearn modeling hands on-then apply it to a series of increasingly complex, real-world problems Rational Software Corporation and one of the original designers of the UML.Technical requirements: Windows 95/98, Windows NT 4.x, Windows 2000Internet Explorer (Included)20 MB disk space32 MB RAMCD-ROM driveSound card suppor
Model-Based Systems Engineering (MBSE), which tackles architecting and design of complex systems through the use of formal models, is emerging as the most critical component of systems engineering. This textbook specifies the two leading conceptual modeling languages, OPM—the new ISO 19450, composed primarily by the author of this book, and OMG SysML. It provides essential insights into a domain-independent, discipline-crossing methodology of developing or researching complex systems of any conceivable kind and size. Combining theory with a host of industrial, biological, and daily life examples, the book explains principles and provides guidelines for architecting complex, multidisciplinary systems, making it an indispensable resource for systems architects and designers, engineers of any discipline, executives at all levels, project managers, IT professional, systems scientists, and engineering students.

An approach to software design that introduces a fully automated analysis giving designers immediate feedback, now featuring the latest version of the Alloy language. In Software Abstractions Daniel Jackson introduces an approach to software design that draws on traditional formal methods but exploits automated tools to find flaws as early as possible. This approach—which Jackson calls “lightweight formal methods” or “agile modeling”—takes from formal specification the idea of a precise and expressive notation based on a tiny core of simple and robust concepts but replaces conventional analysis based on theorem proving with a fully automated analysis that gives designers immediate feedback. Jackson has developed Alloy, a language that captures the essence of software abstractions simply and succinctly, using a minimal toolkit of mathematical notions. This revised edition updates the text, examples, and appendixes to be fully compatible with Alloy 4.

This textbook mainly addresses beginners and readers with a basic knowledge of object-oriented programming languages like Java or C#, but with little or no modeling or software engineering experience – thus reflecting the majority of students in introductory courses at universities. Using UML, it introduces basic modeling concepts in a highly precise manner, while refraining from the interpretation of rare special cases. After a brief explanation of
why modeling is an indispensable part of software development, the authors introduce the individual diagram types of UML (the class and object diagram, the sequence diagram, the state machine diagram, the activity diagram, and the use case diagram), as well as their interrelationships, in a step-by-step manner. The topics covered include not only the syntax and the semantics of the individual language elements, but also pragmatic aspects, i.e., how to use them wisely at various stages in the software development process. To this end, the work is complemented with examples that were carefully selected for their educational and illustrative value. Overall, the book provides a solid foundation and deeper understanding of the most important object-oriented modeling concepts and their application in software development. An additional website offers a complete set of slides to aid in teaching the contents of the book, exercises and further e-learning material.

This book presents the collected writings of OMT guru Dr James Rumbaugh. These articles encompass the development, refinement, and current state of OMT.

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