

Program Development in Java

Abstraction,
Specification, and
Object-Oriented Design

Barbara Liskov
with John Guttag

Program Development In Java Abstraction Specification And Object Oriented Design

B. Liskov, John Guttag



Program Development In Java Abstraction Specification And Object Oriented Design:

Program Development in Java Barbara Liskov, John Guttag, 2000-06-06 Written by a world renowned expert on programming methodology and the winner of the 2008 Turing Award this book shows how to build production quality programs programs that are reliable easy to maintain and quick to modify Its emphasis is on modular program construction how to get the modules right and how to organize a program as a collection of modules The book presents a methodology effective for either an individual programmer who may be writing a small program or a single module in a larger one or a software engineer who may be part of a team developing a complex program comprised of many modules Both audiences will acquire a solid foundation for object oriented program design and component based software development from this methodology Because each module in a program corresponds to an abstraction such as a collection of documents or a routine to search the collection for documents of interest the book first explains the kinds of abstractions most useful to programmers procedures iteration abstractions and most critically data abstractions Indeed the author treats data abstraction as the central paradigm in object oriented program design and implementation The author also shows with numerous examples how to develop informal specifications that define these abstractions specifications that describe what the modules do and then discusses how to implement the modules so that they do what they are supposed to do with acceptable performance Other topics discussed include Encapsulation and the need for an implementation to provide the behavior defined by the specification Tradeoffs between simplicity and performance Techniques to help readers of code understand and reason about it focusing on such properties as rep invariants and abstraction functions Type hierarchy and its use in defining families of related data abstractions Debugging testing and requirements analysis Program design as a top down iterative process and design patterns The Java programming language is used for the book s examples However the techniques presented are language independent and an introduction to key Java concepts is included for programmers who may not be familiar with the language *Program Development in Java* B. Liskov, John Guttag, 2001

Program Development in Java Barbara Liskov, John Guttag, 2001 Liskov engineering Massachusetts Institute of Technology and Guttag computer science and engineering also at MIT present a component based methodology for software program development The book focuses on modular program construction how to get the modules right and how to organize a program as a collection of modules It explains the key types of abstractions demonstrates how to develop specifications that define these abstractions and illustrates how to implement them using numerous examples An introduction to key Java concepts is included Annotation copyrighted by Book News Inc Portland OR *A Practical Guide to Data Structures and Algorithms using Java* Sally. A Goldman, Kenneth. J Goldman, 2007-08-23 Although traditional texts present isolated algorithms and data structures they do not provide a unifying structure and offer little guidance on how to appropriately select among them Furthermore these texts furnish little if any source code and leave many of the more difficult aspects of

the implementation as exercises A fresh alternative to **Formal Methods and Software Engineering** Yamine Ait-Ameur, Shengchao Qin, 2019-10-28 This book constitutes the proceedings of the 21st International Conference on Formal Engineering Methods ICFEM 2019 held in Shenzhen China in November 2019 The 28 full and 8 short papers presented in this volume were carefully reviewed and selected from 94 submissions They deal with the recent progress in the use and development of formal engineering methods for software and system design and record the latest development in formal engineering methods

Mathematics of Program Construction Claude Bolduc, Jules Desharnais, Bechir Ktari, 2010-06-26 This book constitutes the refereed proceedings of the 10th International Conference on Mathematics of Program Construction MPC 2010 held in Quebec City Canada in June 2010 The 19 revised full papers presented together with 1 invited talk and the abstracts of 2 invited talks were carefully reviewed and selected from 37 submissions The focus is on techniques that combine precision with conciseness enabling programs to be constructed by formal calculation Within this theme the scope of the series is very diverse including programming methodology program specification and transformation program analysis programming paradigms programming calculi programming language semantics security and program logics

C# for Artists Rick Miller, 2008 Reliable Software Technologies -- Ada-Europe 2003 Jean-Pierre Rosen, Alfred Strohmeier, 2003-06-02 The refereed proceedings of the 8th International Conference on Reliable Software Technologies Ada Europe 2003 held in Toulouse France in June 2003 The 29 revised full papers presented together with 3 invited papers were carefully reviewed and selected from numerous submissions The papers are organized in topical sections on Ravenscar language issues static analysis distributed information systems software metrics software components formal specification real time kernel software testing and real time systems design

Tests and Proofs Achim Brucker, Jacques Julliand, 2012-05-26 This book constitutes the refereed proceedings of the 6th International Conference on Test and Proofs TAP 2012 held in Prague Czech Republic in May June 2012 as part of the TOOLS 2012 Federated Conferences The 9 revised full papers presented together with 2 invited papers 4 short papers and one tutorial were carefully reviewed and selected from 29 submissions The papers are devoted to the convergence of tests and proofs for developing novel techniques and application that support engineers in building secure safe and reliable systems Among the topics covered are model based testing scenario based testing complex data structure generation and the validation of protocols and libraries

Models in Software Engineering Jörg Kienzle, 2012-04-13 This book presents a comprehensive documentation of the scientific outcome of satellite events held at the 14th International Conference on Model Driven Engineering Languages and Systems MODELS 2011 held in Wellington New Zealand in October 2011 In addition to 3 contributions each of the doctoral symposium and the educators symposium papers from the following workshops are included variability for you multi paradigm modeling experiences and empirical studies in software modelling models run time model driven engineering verification and validation comparing modeling approaches models and evolution and model based architecting and

construction of embedded systems

Program Development In Java Abstraction Specification And Object Oriented Design Book Review: Unveiling the Magic of Language

In an electronic era where connections and knowledge reign supreme, the enchanting power of language has been apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Program Development In Java Abstraction Specification And Object Oriented Design**," published by a highly acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we shall delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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