From Mathematics to Generic Programming

Alexander A. Stepanov, Daniel E. Rose

From Mathematics to Generic Programming

Alexander A. Stepanov, Daniel E. Rose

From Mathematics to Generic Programming Alexander A. Stepanov, Daniel E. Rose
In this substantive yet accessible book, pioneering software designer Alexander Stepanov and his colleague Daniel Rose illuminate the principles of generic programming and the mathematical concept of abstraction on which it is based, helping you write code that is both simpler and more powerful.

If you're a reasonably proficient programmer who can think logically, you have all the background you'll need. Stepanov and Rose introduce the relevant abstract algebra and number theory with exceptional clarity. They carefully explain the problems mathematicians first needed to solve, and then show how these mathematical solutions translate to generic programming and the creation of more effective and elegant code. To demonstrate the crucial role these mathematical principles play in many modern applications, the authors show how to use these results and generalized algorithms to implement a real-world public-key cryptosystem.

As you read this book, you'll master the thought processes necessary for effective programming and learn how to generalize narrowly conceived algorithms to widen their usefulness without losing efficiency. You'll also gain deep insight into the value of mathematics to programming—insight that will prove invaluable no matter what programming languages and paradigms you use.

You will learn about

- How to generalize a four thousand-year-old algorithm, demonstrating indispensable lessons about clarity and efficiency
- Ancient paradoxes, beautiful theorems, and the productive tension between continuous and discrete
- A simple algorithm for finding greatest common divisor (GCD) and modern abstractions that build on it
- Powerful mathematical approaches to abstraction
- How abstract algebra provides the idea at the heart of generic programming
- Axioms, proofs, theories, and models: using mathematical techniques to organize knowledge about your algorithms and data structures
- Surprising subtleties of simple programming tasks and what you can learn from them
- How practical implementations can exploit theoretical knowledge

Download and Read Free Online From Mathematics to Generic Programming Alexander A. Stepanov, Daniel E. Rose

---

From reader reviews:

Karen Johnson:

Here thing why this specific From Mathematics to Generic Programming are different and trusted to be yours. First of all looking at a book is good however it depends in the content than it which is the content is as delicious as food or not. From Mathematics to Generic Programming giving you information deeper as different ways, you can find any e-book out there but there is no book that similar with From Mathematics to Generic Programming. It gives you thrill reading through journey, its open up your own eyes about the thing this happened in the world which is maybe can be happened around you. You can easily bring everywhere like in park your car, café, or even in your method home by train. For anyone who is having difficulties in bringing the paper book maybe the form of From Mathematics to Generic Programming in e-book can be your alternative.

Frank Johnson:

Do you considered one of people who can't read enjoyable if the sentence chained from the straightway, hold on guys this particular aren't like that. This From Mathematics to Generic Programming book is readable by means of you who hate those straight word style. You will find the info here are arrange for enjoyable reading experience without leaving possibly decrease the knowledge that want to offer to you. The writer associated with From Mathematics to Generic Programming content conveys the idea easily to understand by a lot of people. The printed and e-book are not different in the content but it just different as it. So , do you still thinking From Mathematics to Generic Programming is not loveable to be your top list reading book?

David Dabbs:

Are you kind of hectic person, only have 10 or 15 minute in your moment to upgrading your mind skill or thinking skill actually analytical thinking? Then you are receiving problem with the book than can satisfy your short space of time to read it because this all time you only find e-book that need more time to be examine. From Mathematics to Generic Programming can be your answer since it can be read by a person who have those short extra time problems.

Ada Peterson:

Many people spending their time by playing outside having friends, fun activity using family or just watching TV 24 hours a day. You can have new activity to shell out your whole day by studying a book. Ugh, think reading a book can definitely hard because you have to take the book everywhere? It okay you can have the e-book, getting everywhere you want in your Mobile phone. Like From Mathematics to Generic Programming which is keeping the e-book version. So , why not try out this book? Let's view.

Download and Read Online From Mathematics to Generic Programming Alexander A. Stepanov, Daniel E. Rose #5HWRT1E08G7

Read From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose for online ebook

From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose books to read online.

Online From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose ebook PDF download

From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose Doc

From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose Mobipocket

From Mathematics to Generic Programming by Alexander A. Stepanov, Daniel E. Rose EPub