# The Definitive Antlr 4 Reference

You can test just about anything with Cucumber. We certainly have, and in Cucumber Recipes we'll show you how to apply our hard-won field experience to your own projects. Once you've mastered the basics, this book will show you how to get the most out of Cucumber--from specific situations to advanced test-writing advice. With over forty practical recipes, you'll test desktop, web, mobile, and server applications across a variety of platforms. This book gives you tools that you can use today to automate any system that you encounter, and do it well. The Cucumber Book showed you how your team can work together to write executable specifications--documents that tell a clear story and also happen to be working test code. We'll arm you with ready-rolled solutions to real-world problems: your tests will run faster, read more clearly, and work in any environment. Our first tips will help you fit Cucumber into your workflow. Powerful filters will tame tables full of test data, transforming them into the format your application needs. Custom output formatters will generate reports for any occasion. Continuous Integration servers will run your Cucumber tests every time the code changes. Next, you'll find recipes tailored to the platform you're running on. Ever wanted to know how to test a Grails app from Cucumber? Need to put a Windows program through its paces? How about a mobile app running on Android or iOS? We'll show you how to do all of these. Throughout the book, you'll see how to make Cucumber sing as you interoperate with different platforms, languages, and environments. From embedded circuits to Python and PHP web apps, Cucumber has something for you. What You Need: You'll need basic working knowledge of Cucumber and Ruby. Individual recipes may have additional requirements; for example, a recipe on Windows automation might pull in an open source GUI driver. We've written the recipes for compatibility with Ruby 1.9.3 and 1.8.7, plus Cucumber 1.1.4. Other versions may work as well, but these are the ones we test with.

If you program in C++ you've been neglected. Test-driven development (TDD) is a modern software development practice that can dramatically reduce the number of defects in systems, produce more maintainable code, and give you the confidence to change your software to meet changing needs. But C++ programmers have been ignored by those promoting TDD--until now. In this book, Jeff Langr gives you hands-on lessons in the challenges and rewards of doing TDD in C++. Modern C++ Programming With Test-Driven Development, the only comprehensive treatment on TDD in C++ provides you with everything you need to know about TDD, and the challenges and benefits of implementing it in your C++ systems. Its many detailed code examples take you step-by-step from TDD basics to advanced concepts. As a veteran C++ programmer, you're already writing high-quality code, and you work hard to maintain code quality. It doesn't have to be that hard. In this book, you'll learn: how to use TDD to improve legacy C++ systems how to identify and deal with troublesome system dependencies how to do dependency injection, which is particularly tricky in C++ how to use testing tools for C++ that aid TDD new C++11 features that facilitate TDD As you grow in TDD mastery, you'll discover how to keep a massive C++ system from becoming a design mess over time, as well as particular C++ trouble spots to avoid. You'll find out how to prevent your tests from being a maintenance burden and how to think in TDD without giving up your hard-won C++ skills. Finally, you'll see how to grow and sustain TDD in your team. Whether you're a complete unit-testing novice or an experienced tester, this book will lead you to mastery of test-driven development in C++. What You Need A C++ compiler running under Windows or Linux, preferably one that supports C++11. Examples presented in the book were built under gcc 4.7.2. Google Mock 1.6 (downloadable for free; it contains Google Test as well) or an alternate C++ unit testing tool. Most examples in the book are written for Google Mock, but it isn't difficult to translate them to your tool of choice. A good programmer's editor or IDE. cmake, preferably. Of course, you can use your own preferred make too. CMakeLists.txt files are provided for each project. Examples provided were built using cmake version 2.8.9. Various freely-available third-party libraries are used as the basis for examples in the book. These include: cURL JsonCpp Boost (filesystem, date_time/gregorian, algorithm, assign) Several examples use the boost headers/libraries. Only one example uses cURL and JsonCpp.

This book provides a practically-oriented introduction to high-level programming language implementation. It demystifies what goes on within a compiler and stimulates the reader's interest in compiler design, an essential aspect of computer science. Programming language analysis and translation techniques are used in many software application areas. A Practical Approach to Compiler Construction covers the fundamental principles of the subject in an accessible way. It presents the necessary background theory and shows how it can be applied to implement complete compilers. A step-by-step approach, based on a standard compiler structure is adopted, presenting up-to-date techniques and examples. Strategies and designs are described in detail to guide the reader in implementing a translator for a programming language. A simple high-level language, loosely based on C, is used to illustrate aspects of the compilation process. Code examples in C are included, together with discussion and illustration of how this code can be extended to cover the compilation of more complex languages. Examples are also given of the use of the flex and bison compiler construction tools. Lexical and syntax analysis is covered in detail together with a comprehensive coverage of semantic analysis, intermediate representations, optimisation and code generation. Introductory material on parallelisation is also included. Designed for personal study as well as for use in introductory undergraduate and postgraduate courses in compiler design, the author assumes that readers have a reasonable competence in programming in any high-level language.

Now you can bring the best of Ruby into the world of Java, with Using JRuby. Come to the source for the JRuby core team's insights and insider tips. You'll learn how to call Java objects seamlessly from Ruby, and deal with Java idioms such as interfaces and overloaded functions. Run Ruby code from Java, and make a Java program scriptable in Ruby. See how to compile Ruby into .class files that are callable from Java, Scala, Clojure, or any other JVM language. In Using JRuby you'll venture into the wide world of open-source Ruby and Java libraries. Write Ruby on Rails web applications that run on Java servers like Tomcat. Use Java's JDBC or Hibernate to easily connect Ruby to industry-standard databases. Test your Java program using Ruby's elegant Cucumber and RSpec frameworks. Create dazzling desktop user interfaces with frameworks like Limelight and Monkeybars. Package a Rails or plain Ruby project for easy deployment to any Java environment. JRuby lets you merge the best of several possible worlds, so you can create unique software using the best tools available. This book is your definitive guide.

Have you ever... - Wanted to work at an exciting futuristic company? - Struggled with an interview problem that could have been solved in 15 minutes? - Wished you could study real-world computing problems? If so, you need to read Elements of Programming Interviews (EPI). EPI is your comprehensive guide to interviewing for software development roles. The core of EPI is a collection of over 250 problems with detailed solutions. The problems are representative of interview questions asked at leading software companies. The problems are illustrated with 200 figures, 300 tested programs, and 150 additional variants. The book begins with

a summary of the nontechnical aspects of interviewing, such as strategies for a great interview, common mistakes, perspectives from the other side of the table, tips on negotiating the best offer, and a guide to the best ways to use EPI. We also provide a summary of data structures, algorithms, and problem solving patterns. Coding problems are presented through a series of chapters on basic and advanced data structures, searching, sorting, algorithm design principles, and concurrency. Each chapter stars with a brief introduction, a case study, top tips, and a review of the most important library methods. This is followed by a broad and thought-provoking set of problems. A practical, fun approach to computer science fundamentals, as seen through the lens of common programming interview questions. Jeff Atwood/Co-founder, Stack Overflow and Discourse

A definitive guide to using the latest verson of the parser generator covers such topics as grammar syntax, resolving grammar ambiguities, parser fault tolerance and error reporting, and generating source code.

Printed in full color. Faced with a software project of epic proportions? Tired of over-committing and under-delivering? Enter the dojo of the agile samurai, where agile expert Jonathan Rasmusson shows you how to kick-start, execute, and deliver your agile projects. Combining cutting-edge tools with classic agile practices, The Agile Samurai gives you everything you need to deliver something of value every week and make rolling your software into production a non-event. Get ready to kick some software project butt. By learning the ways of the agile samurai you will discover: how to create plans and schedules your customer and your team can believe in what characteristics make a good agile team and how to form your own how to gather requirements in a fraction of the time using agile user stories what to do when you discover your schedule is wrong, and how to look like a pro correcting it how to execute fiercely by leveraging the power of agile software engineering practices By the end of this book you will know everything you need to set up, execute, and successfully deliver agile projects, and have fun along the way. If you're a project lead, this book gives you the tools to set up and lead your agile project from start to finish. If you are an analyst, programmer, tester, usability designer, or project manager, this book gives you the insight and foundation necessary to become a valuable agile team member. The Agile Samurai slices away the fluff and theory that make other books less-than-agile. It's packed with best practices, war stories, plenty of humor and hands-on tutorial exercises that will get you doing the right things, the right way. This book will make a difference.

This book is designed primarily for use as a textbook in a one-semester course on compiler design for undergraduate students and beginning graduate students. The only prerequisites for this book are familiarity with basic algorithms and data structures (lists, maps, recursion, etc.), a rudimentary knowledge of computer architecture and assembly language, and some experience with the Java programming language. A complete study of compilers could easily fill several graduate-level courses, and therefore some simplifications and compromises are necessary for a one-semester course that is accessible to undergraduate students. Following are some of the decisions made in order to accommodate the goals of this book. The book has a narrow focus as a project-oriented course on compilers. Compiler theory is kept to a minimum, but the project orientation retains the "fun" part of studying compilers. The source language being compiled is relatively simple, but it is powerful enough to be interesting and challenging. It has basic data types, arrays, procedures, functions, and parameters, but it relegates many other interesting language features to the project exercises. The target language is assembly language for a virtual machine with a stack-based architecture, similar to but much simpler than the Java Virtual Machine (JVM). This approach greatly simplifies code generation. Both an assembler and an emulator for the virtual machine are provided on the course web site. No special compiler-related tools are required or used within the book. Students require access only to a Java compiler and a text editor, but most students will want to use Java with an Integrated Development Environment (IDE). One very important component of a compiler is the parser, which verifies that a source program conforms to the language syntax and produces an intermediate representation of the program that is suitable for additional analysis and code generation. There are several different approaches to parsing, but in keeping with the focus on a one-semester course, this book emphasizes only one approach, recursive descent parsing with one symbol lookahead.

Every enterprise application creates data, whether it's log messages, metrics, user activity, outgoing messages, or something else. And how to move all of this data becomes nearly as important as the data itself. If you're an application architect, developer, or production engineer new to Apache Kafka, this practical guide shows you how to use this open source streaming platform to handle real-time data feeds. Engineers from Confluent and LinkedIn who are responsible for developing Kafka explain how to deploy production Kafka clusters, write reliable event-driven microservices, and build scalable stream-processing applications with this platform. Through detailed examples, you'll learn Kafka's design principles, reliability guarantees, key APIs, and architecture details, including the replication protocol, the controller, and the storage layer. Understand publish-subscribe messaging and how it fits in the big data ecosystem. Explore Kafka producers and consumers for writing and reading messages Understand Kafka patterns and use-case requirements to ensure reliable data delivery Get best practices for building data pipelines and applications with Kafka Manage Kafka in production, and learn to perform monitoring, tuning, and maintenance tasks Learn the most critical metrics among Kafka's operational measurements Explore how Kafka's stream delivery capabilities make it a perfect source for stream processing systems

Printed in full color. You know what's even better than playing games? Creating your own. Even if you're an absolute beginner, this book will teach you how to make your own online games with interactive examples. You'll learn programming using nothing more than a browser, and see cool, 3D results as you type. You'll learn real-world programming skills in a real programming language: JavaScript, the language of the web. You'll be amazed at what you can do as you build interactive worlds and fun games. You'll jump right in and write games and simulations while learning programming fundamentals. You'll use the ICE Code Editor, which was created especially for this book to make it easy for you to get started with JavaScript programming. With the ICE Editor, you'll see the results of your work right away. Want a red donut? You can make hundreds of them, spinning around like crazy right next to the code you just typed. You'll do hands-on coding in every chapter. You'll start by building simple animated shapes, then make your own player--who can do cartwheels! You'll learn how to build your own games from start to finish, including a monster eating fruit, a cave puzzle, and rafting on a river. You'll animate simple shapes to create a model of the solar system, and make your own website so that you can show off your games with your friends. If you just want to make games, jump to the lessons focusing on projects. To understand some of the theory better or if you need some help with functions, turn to the

chapters that explain the programming concepts. We'll walk you carefully through all the math needed to bring games to life. Best of all, you get to create awesome games and say, "I made this!"

Your customers want rock-solid, bug-free software that does exactly what they expect it to do. Yet they can't always articulate their ideas clearly enough for you to turn them into code. You need Cucumber: a testing, communication, and requirements tool-all rolled into one. All the code in this book is updated for Cucumber 2.4, Rails 5, and RSpec 3.5. Express your customers' wild ideas as a set of clear, executable specifications that everyone on the team can read. Feed those examples into Cucumber and let it guide your development. Build just the right code to keep your customers happy. You can use Cucumber to test almost any system or any platform. Get started by using the core features of Cucumber and working with Cucumber's Gherkin DSL to describe-in plain language-the behavior your customers want from the system. Then write Ruby code that interprets those plain-language specifications and checks them against your application. Next, consolidate the knowledge you've gained with a worked example, where you'll learn more advanced Cucumber techniques, test asynchronous systems, and test systems that use a database. Recipes highlight some of the most difficult and commonly seen situations the authors have helped teams solve. With these patterns and techniques, test Ajax-heavy web applications with Capybara and Selenium, REST web services, Ruby on Rails applications, command-line applications, legacy applications, and more. Written by the creator of Cucumber and the co-founders of Cucumber Ltd., this authoritative guide will give you and your team all the knowledge you need to start using Cucumber with confidence. What You Need: Windows, Mac OS X (with XCode) or Linux, Ruby 1.9.2 and upwards, Cucumber 2.4, Rails 5, and RSpec 3.5

More than ever, learning to program concurrency is critical to creating faster, responsive applications. Speedy and affordable multicore hardware is driving the demand for high-performing applications, and you can leverage the Java platform to bring these applications to life. Concurrency on the Java platform has evolved, from the synchronization model of JDK to software transactional memory (STM) and actor-based concurrency. This book is the first to show you all these concurrency styles so you can compare and choose what works best for your applications. You'll learn the benefits of each of these models, when and how to use them, and what their limitations are. Through hands-on exercises, you'll learn how to avoid shared mutable state and how to write good, elegant, explicit synchronization-free programs so you can create easy and safe concurrent applications. The techniques you learn in this book will take you from dreading concurrency to mastering and enjoying it. Best of all, you can work with Java or a JVM language of your choice - Clojure, JRuby, Groovy, or Scala - to reap the growing power of multicore hardware. If you are a Java programmer, you'd need JDK 1.5 or later and the Akka 1.0 library. In addition, if you program in Scala, Clojure, Groovy or JRuby you'd need the latest version of your preferred language. Groovy programmers will also need GPars.

Offers information on how to exploit the parallel architectures in a computer's GPU to improve code performance, scalability, and resilience.

Systems programming provides the foundation for the world's computation. Writing performance-sensitive code requires a programming language that puts programmers in control of how memory, processor time, and other system resources are used. The Rust systems programming language combines that control with a modern type system that catches broad classes of common mistakes, from memory management errors to data races between threads. With this practical guide, experienced systems programmers will learn how to successfully bridge the gap between performance and safety using Rust. Jim Blandy, Jason Orendorff, and Leonora Tindall demonstrate how Rust's features put programmers in control over memory consumption and processor use by combining predictable performance with memory safety and trustworthy concurrency. You'll learn: Rust's fundamental data types and the core concepts of ownership and borrowing How to write flexible, efficient code with traits and generics How to write fast, multithreaded code without data races Rust's key power tools: closures, iterators, and asynchronous programming Collections, strings and text, input and output, macros, unsafe code, and foreign function interfaces This revised, updated edition covers the Rust 2021 Edition.

Another day without Test-Driven Development means more time wasted chasing bugs and watching your code deteriorate. You thought TDD was for someone else, but it's not! It's for you, the embedded C programmer. TDD helps you prevent defects and build software with a long useful life. This is the first book to teach the hows and whys of TDD for C programmers. TDD is a modern programming practice C developers need to know. It's a different way to program---unit tests are written in a tight feedback loop with the production code, assuring your code does what you think. You get valuable feedback every few minutes. You find mistakes before they become bugs. You get early warning of design problems. You get immediate notification of side effect defects. You get to spend more time adding valuable features to your product. James is one of the few experts in applying TDD to embedded C. With his 1.5 decades of training,coaching, and practicing TDD in C, C++, Java, and C# he will lead you from being a novice in TDD to using the techniques that few have mastered. This book is full of code written for embedded C programmers. You don't just see the end product, you see code and tests evolve. James leads you through the thought process and decisions made each step of the way. You'll learn techniques for test-driving code right nextto the hardware, and you'll learn design principles and how to apply them to C to keep your code clean and flexible. To run the examples in this book, you will need a C/C++ development environment on your machine, and the GNU GCC tool chain or Microsoft Visual Studio for C++ (some project conversion may be needed).

Dive hands-on into the tools, techniques, and information for making your own analog synthesizer. If you're a musician or a hobbyist with experience in building electronic projects from kits or schematics, this do-it-yourself guide will walk you through the parts and schematics you need, and how to tailor them for your needs. Author Ray Wilson shares his decades of experience in synth-DIY, including the popular Music From Outer Space (MFOS) website and analog synth community. At the end of the book, you'll apply everything you've learned by building an analog synthesizer, using the

MFOS Noise Toaster kit. You'll also learn what it takes to create synth-DIY electronic music studio. Get started in the fun and engaging hobby of synth-DIY without delay. With this book, you'll learn: The differences between analog and digital synthesizers Analog synthesizer building blocks, including VCOs, VCFs, VCAs, and LFOs How to tool up for synth-DIY, including electronic instruments and suggestions for home-made equipment Foundational circuits for amplification, biasing, and signal mixing How to work with the MFOS Noise Toaster kit Setting up a synth-DIY electronic music studio on a budget

Programming Language Pragmatics, Fourth Edition, is the most comprehensive programming language textbook available today. It is distinguished and acclaimed for its integrated treatment of language design and implementation, with an emphasis on the fundamental tradeoffs that continue to drive software development. The book provides readers with a solid foundation in the syntax, semantics, and pragmatics of the full range of programming languages, from traditional languages like C to the latest in functional, scripting, and object-oriented programming. This fourth edition has been heavily revised throughout, with expanded coverage of type systems and functional programming, a unified treatment of polymorphism, highlights of the newest language standards, and examples featuring the ARM and x86 64-bit architectures. Updated coverage of the latest developments in programming language design, including C & C++11, Java 8, C# 5, Scala, Go, Swift, Python 3, and HTML 5 Updated treatment of functional programming, with extensive coverage of OCaml New chapters devoted to type systems and composite types Unified and updated treatment of polymorphism in all its forms New examples featuring the ARM and x86 64-bit architectures

Printed in full color. To keep doing what you love, you need to maintain your own systems, not just the ones you write code for. Regular exercise and proper nutrition help you learn, remember, concentrate, and be creative--skills critical to doing your job well. Learn how to change your work habits, master exercises that make working at a computer more comfortable, and develop a plan to keep fit, healthy, and sharp for years to come. Small changes to your habits can improve your health--without getting in the way of your work. The Healthy Programmer gives you a daily plan of action that's incremental and iterative just like the software development processes you're used to. Every tip, trick, and best practice is backed up by the advice of doctors, scientists, therapists, nutritionists, and numerous fitness experts. We'll review the latest scientific research to understand how being healthy is good for your body and mind. You'll start by adding a small amount of simple activity to your day--no trips to the gym needed. You'll learn how to mitigate back pain, carpal tunnel syndrome, headaches, and many other common sources of pain. You'll also learn how to refactor your diet to properly fuel your body without gaining weight or feeling hungry. Then, you'll turn the exercises and activities into a pragmatic workout methodology that doesn't interfere with the demands of your job and may actually improve your cognitive skills. You'll also learn the secrets of prominent figures in the software community who turned their health around by making diet and exercise changes. Throughout, you'll track your progress with a "companion iPhone app". Finally, you'll learn how to make your healthy lifestyle pragmatic, attainable, and fun. If you're going to live well, you should enjoy it. Disclaimer This book is intended only as an informative guide for those wishing to know more about health issues. In no way is this book intended to replace, countermand, or conflict with the advice given to you by your own healthcare provider including Physician, Nurse Practitioner, Physician Assistant, Registered Dietician, and other licensed professionals. Keep in mind that results vary from person to person. This book is not intended as a substitute for medical or nutritional advice from a healthcare provider or dietician. Some people have a medical history and/or condition and/or nutritional requirements that warrant individualized recommendations and, in some cases, medications and healthcare surveillance. Do not start, stop, or change medication and dietary recommendations without professional medical and/or Registered Dietician advice. A healthcare provider should be consulted if you are on medication or if there are any symptoms that may require diagnosis or medical attention. Do not change your diet if you are ill, or on medication except under the supervision of a healthcare provider. Neither this, nor any other book or discussion forum is intended to take the place of personalized medical care of treatment provided by your healthcare provider. This book was current as of January, 2013 and as new information becomes available through research, experience, or changes to product contents, some of the data in this book may become invalid. You should seek the most up to date information on your medical care and treatment from your health care professional. The ultimate decision concerning care should be made between you and your healthcare provider. Information in this book is general and is offered with no guarantees on the part of the author, editor or The Pragmatic Programmers, LLC. The author, editors and publisher disclaim all liability in connection with the use of this book.

If you need to parse or process text data in Linux or Unix, this useful book explains how to use flex and bison to solve your problems quickly. flex & bison is the long-awaited sequel to the classic O'Reilly book, lex & yacc. In the nearly two decades since the original book was published, the flex and bison utilities have proven to be more reliable and more powerful than the original Unix tools. flex & bison covers the same core functionality vital to Linux and Unix program development, along with several important new topics. You'll find revised tutorials for novices and references for advanced users, as well as an explanation of each utility's basic usage and simple, standalone applications you can create with them. With flex & bison, you'll discover the wide range of uses these flexible tools offer. Address syntax crunching that regular expressions tools can't handle Build compilers and interpreters, and handle a wide range of text processing functions Interpret code, configuration files, or any other structured format Learn key programming techniques, including abstract syntax trees and symbol tables Implement a full SQL grammar-with complete sample code Use new features such as pure (reentrant) lexers and parsers, powerful GLR parsers, and interfaces to C++

Shows programmers how to use two UNIX utilities, lex and yacc, in program development. The second edition contains completely revised tutorial sections for novice users and reference sections for advanced users. This edition is twice the size of the first, has an expanded index, and covers Bison and Flex.

Learn how to build and use all parts of real-world compilers, including the frontend, optimization pipeline, and a new backend by leveraging the power of LLVM core libraries Key Features Get to grips with effectively using LLVM libraries step-by-step Understand LLVM compiler high-level design and apply the same principles to your own compiler Use compiler-based tools to improve the quality of code in C++ projects Book Description LLVM was built to bridge the gap between compiler textbooks and actual compiler development. It provides a modular codebase and advanced tools which help developers to build compilers easily. This book provides a practical introduction to LLVM, gradually helping you navigate through complex scenarios with ease when it comes to building and working with compilers. You'll start by configuring, building, and installing LLVM libraries, tools, and external projects. Next, the book will introduce you to LLVM design and how it works in practice during each LLVM compiler stage:

frontend, optimizer, and backend. Using a subset of a real programming language as an example, you will then learn how to develop a frontend and generate LLVM IR, hand it over to the optimization pipeline, and generate machine code from it. Later chapters will show you how to extend LLVM with a new pass and how instruction selection in LLVM works. You'll also focus on Just-in-Time compilation issues and the current state of JIT-compilation support that LLVM provides, before finally going on to understand how to develop a new backend for LLVM. By the end of this LLVM book, you will have gained real-world experience in working with the LLVM compiler development framework with the help of hands-on examples and source code snippets. What you will learn Configure, compile, and install the LLVM framework Understand how the LLVM source is organized Discover what you need to do to use LLVM in your own projects Explore how a compiler is structured, and implement a tiny compiler Generate LLVM IR for common source language constructs Set up an optimization pipeline and tailor it for your own needs Extend LLVM with transformation passes and clang tooling Add new machine instructions and a complete backend Who this book is for This book is for compiler developers, enthusiasts, and engineers who are new to LLVM and are interested in learning about the LLVM framework. It is also useful for C++ software engineers looking to use compiler-based tools for code analysis and improvement, as well as casual users of LLVM libraries who want to gain more knowledge of LLVM essentials. Intermediate-level experience with C++ programming is mandatory to understand the concepts covered in this book more effectively.

For too long, developers have worked on disorganized application projects, where every part seemed to have its own build system, and no common repository existed for information about the state of the project. Now there's help. The long-awaited official documentation to Maven is here. Written by Maven creator Jason Van Zyl and his team at Sonatype, Maven: The Definitive Guide clearly explains how this tool can bring order to your software development projects. Maven is largely replacing Ant as the build tool of choice for large open source Java projects because, unlike Ant, Maven is also a project management tool that can run reports, generate a project website, and facilitate communication among members of a working team. To use Maven, everything you need to know is in this guide. The first part demonstrates the tool's capabilities through the development, from ideation to deployment, of several sample applications -- a simple software development project, a simple web application, a multi-module project, and a multi-module enterprise project. The second part offers a complete reference guide that includes: The POM and Project Relationships The Build Lifecycle Plugins Project website generation Advanced site generation Reporting Properties Build Profiles The Maven Repository Team Collaboration Writing Plugins IDEs such as Eclipse, IntelliJ, ands NetBeans Using and creating assemblies Developing with Maven Archetypes Several sources for Maven have appeared online for some time, but nothing served as an introduction and comprehensive reference guide to this tool -- until now. Maven: The Definitive Guide is the ideal book to help you manage development projects for software, web applications, and enterprise applications. And it comes straight from the source.

This new, expanded textbook describes all phases of a modern compiler: lexical analysis, parsing, abstract syntax, semantic actions, intermediate representations, instruction selection via tree matching, dataflow analysis, graph-coloring register allocation, and runtime systems. It includes good coverage of current techniques in code generation and register allocation, as well as functional and object-oriented languages, that are missing from most books. In addition, more advanced chapters are now included so that it can be used as the basis for a two-semester or graduate course. The most accepted and successful techniques are described in a concise way, rather than as an exhaustive catalog of every possible variant. Detailed descriptions of the interfaces between modules of a compiler are illustrated with actual C header files. The first part of the book, Fundamentals of Compilation, is suitable for a one-semester first course in compiler design. The second part, Advanced Topics, which includes the advanced chapters, covers the compilation of object-oriented and functional languages, garbage collection, loop optimizations, SSA form, loop scheduling, and optimization for cache-memory hierarchies.

Great programmers aren't born--they're made. The industry is moving from object-oriented languages to functional languages, and you need to commit to radical improvement. New programming languages arm you with the tools and idioms you need to refine your craft. While other language primers take you through basic installation and "Hello, World," we aim higher. Each language in Seven More Languages in Seven Weeks will take you on a step-by-step journey through the most important paradigms of our time. You'll learn seven exciting languages: Lua, Factor, Elixir, Elm, Julia, MiniKanren, and Idris. Learn from the award-winning programming series that inspired the Elixir language. Hear how other programmers across broadly different communities solve problems important enough to compel language development. Expand your perspective, and learn to solve multicore and distribution problems. In each language, you'll solve a non-trivial problem, using the techniques that make that language special. Write a fully functional game in Elm, without a single callback, that compiles to JavaScript so you can deploy it in any browser. Write a logic program in Clojure using a programming model, MiniKanren, that is as powerful as Prolog but much better at interacting with the outside world. Build a distributed program in Elixir with Lisp-style macros, rich Ruby-like syntax, and the richness of the Erlang virtual machine. Build your own object layer in Lua, a statistical program in Julia, a proof in code with Idris, and a quiz game in Factor. When you're done, you'll have written programs in five different programming paradigms that were written on three different continents. You'll have explored four languages on the leading edge, invented in the past five years, and three more radically different languages, each with something significant to teach you.

Thoroughly revised, this third edition focuses on modern techniques used to generate synthetic three-dimensional images in a fraction of a second. With the advent of programmable shaders, a wide variety of new algorithms have arisen and evolved over the past few years. This edition discusses current, practical rendering methods used in games and other applications. It also presents a solid theoretical framework and relevant mathematics for the field of interactive computer graphics, all in an approachable style. The authors have made the figures used in the book available for download for fair use.:Download Figures. Reviews Rendering has been a required reference for professional graphics practitioners for nearly a decade. This latest edition is as relevant as ever, covering topics from essential mathematical foundations to advanced techniques used by today's cutting edge games. -- Gabe Newell, President, Valve, May 2008 Rendering ... has been completely revised and revamped for its updated third edition, which focuses on modern techniques used to generate three-dimensional images in a fraction of the time old processes took. From practical rendering for games to math and details for better interactive applications, it's not to be missed. -- The Bookwatch, November 2008 You'll get brilliantly lucid explanations of concepts like vertex morphing and variance shadow mapping—as well as a new respect for the incredible craftsmanship that goes into today's PC games. -- Logan Decker, PC Gamer Magazine , February 2009

What others in the trenches say about The Pragmatic Programmer... "The cool thing about this book is that it's great for keeping

the programming process fresh. The book helps you to continue to grow and clearly comes from people who have been there." —Kent Beck, author of Extreme Programming Explained: Embrace Change "I found this book to be a great mix of solid advice and wonderful analogies!" —Martin Fowler, author of Refactoring and UML Distilled "I would buy a copy, read it twice, then tell all my colleagues to run out and grab a copy. This is a book I would never loan because I would worry about it being lost." —Kevin Ruland, Management Science, MSG-Logistics "The wisdom and practical experience of the authors is obvious. The topics presented are relevant and useful.... By far its greatest strength for me has been the outstanding analogies—tracer bullets, broken windows, and the fabulous helicopter-based explanation of the need for orthogonality, especially in a crisis situation. I have little doubt that this book will eventually become an excellent source of useful information for journeymen programmers and expert mentors alike." —John Lakos, author of Large-Scale C++ Software Design "This is the sort of book I will buy a dozen copies of when it comes out so I can give it to my clients." —Eric Vought, Software Engineer "Most modern books on software development fail to cover the basics of what makes a great software developer, instead spending their time on syntax or technology where in reality the greatest leverage possible for any software team is in having talented developers who really know their craft well. An excellent book." —Pete McBreen, Independent Consultant "Since reading this book, I have implemented many of the practical suggestions and tips it contains. Across the board, they have saved my company time and money while helping me get my job done quicker! This should be a desktop reference for everyone who works with code for a living." —Jared Richardson, Senior Software Developer, iRenaissance, Inc. "I would like to see this issued to every new employee at my company...." —Chris Cleeland, Senior Software Engineer, Object Computing, Inc. "If I'm putting together a project, it's the authors of this book that I want. . . . And failing that I'd settle for people who've read their book." —Ward Cunningham Straight from the programming trenches, The Pragmatic Programmer cuts through the increasing specialization and technicalities of modern software development to examine the core process--taking a requirement and producing working, maintainable code that delights its users. It covers topics ranging from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to Fight software rot; Avoid the trap of duplicating knowledge; Write flexible, dynamic, and adaptable code; Avoid programming by coincidence; Bullet-proof your code with contracts, assertions, and exceptions; Capture real requirements; Test ruthlessly and effectively; Delight your users; Build teams of pragmatic programmers; and Make your developments more precise with automation. Written as a series of self-contained sections and filled with entertaining anecdotes, thoughtful examples, and interesting analogies, The Pragmatic Programmer illustrates the best practices and major pitfalls of many different aspects of software development. Whether you're a new coder, an experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer.

D is a programming language built to help programmers address the challenges of modern software development. It does so by fostering modules interconnected through precise interfaces, a federation of tightly integrated programming paradigms, language-enforced thread isolation, modular type safety, an efficient memory model, and more. The D Programming Language is an authoritative and comprehensive introduction to D. Reflecting the author's signature style, the writing is casual and conversational, but never at the expense of focus and pre¿cision. It covers all aspects of the language (such as expressions, statements, types, functions, contracts, and modules), but it is much more than an enumeration of features. Inside the book you will find In-depth explanations, with idiomatic examples, for all language features How feature groups support major programming paradigms Rationale and best-use advice for each major feature Discussion of cross-cutting issues, such as error handling, contract programming, and concurrency Tables, figures, and "cheat sheets" that serve as a handy quick reference for day-to-day problem solving with D Written for the working programmer, The D Programming Language not only introduces the D language—it presents a compendium of good practices and idioms to help both your coding with D and your coding in general.

Ant is the premiere build management tool for use in Java environments. Unlike traditional build management tools such as GNU Make, Ant is itself written in Java, is platform independent, and interfaces well with the utilities in Sun's Java software development kit (SDK). In addition to being platform independent, Ant is also independent of the integrated development environment (IDE) being used. IDE independence is important for open source projects (or other projects) in which the various developers might use different IDEs. Using Ant, Java developers can: define build chunks, the results that they must produce, and the dependencies between them; automatically retrieve source code from source control systems such as PVCs; build applications by having Ant compile the necessary source files in the proper order. Ant build files are written using XML---a well-established standard---so programmers using Ant are not required to learn yet another scripting language. They will likely already know XML, and will be able to leverage that knowledge. Ant is an open source project, and part of the Jakarta project. Jakarta is Sun's open source reference implementation for the JSP and Servlets specifications, and is part of the Apache group's work.

Long-awaited revision to a unique guide that covers both compilers and interpreters Revised, updated, and now focusing on Java instead of C++, this long-awaited, latest edition of this popular book teaches programmers and software engineering students how to write compilers and interpreters using Java. You?ll write compilers and interpreters as case studies, generating general assembly code for a Java Virtual Machine that takes advantage of the Java Collections Framework to shorten and simplify the code. In addition, coverage includes Java Collections Framework, UML modeling, object-oriented programming with design patterns, working with XML intermediate code, and more.

Introduces the build tool for Java application development, covering both user defined and built-in tasks.

In recent years, searching for source code on the web has become increasingly common among professional software developers and is emerging as an area of academic research. This volume surveys past research and presents the state of the art in the area of "code retrieval on the web." This work is concerned with the algorithms, systems, and tools to allow programmers to search for source code on the web and the empirical studies of these inventions and practices. It is a label that we apply to a set of related research from software engineering, information retrieval, human-computer interaction, management, as well as commercial products. The division of code retrieval on the web into snippet remixing and component reuse is driven both by empirical data, and analysis of existing search engines and tools. Contributors include leading researchers from human-computer interaction, software engineering, programming languages, and management. "Finding Source Code on the Web for Remix and Reuse" consists of five parts. Part I is titled "Programmers and Practices," and consists of a retrospective chapter and two empirical studies on how programmers search the web for source code. Part II is titled "From Data Structures to Infrastructures," and covers

the creation of ground-breaking search engines for code retrieval required ingenuity in the adaptation of existing technology and in the creation of new algorithms and data structures. Part III focuses on "Reuse: Components and Projects," which are reused with minimal modification. Part IV is on "Remix: Snippets and Answers," which examines how source code from the web can also be used as solutions to problems and answers to questions. The book concludes with Part V, "Looking Ahead," that looks at future programming and the legalities of software reuse and remix and the implications of current intellectual property law on the future of software development. The story, "Richie Boss: Private Investigator Manager," was selected as the winner of a crowdfunded short story contest."

When you have questions about C# 7.0 or the .NET CLR and its core Framework assemblies, this bestselling guide has the answers you need. Since its debut in 2000, C# has become a language of unusual flexibility and breadth, but its continual growth means there's always more to learn. Organized around concepts and use cases, this updated edition provides intermediate and advanced programmers with a concise map of C# and .NET knowledge. Dive in and discover why this Nutshell guide is considered the definitive reference on C#. Get up to speed on the C# language, from the basics of syntax and variables to advanced topics such as pointers, operator overloading, and dynamic binding Dig deep into LINQ via three chapters dedicated to the topic Explore concurrency and asynchrony, advanced threading, and parallel programming Work with .NET features, including XML, regular expressions, networking, serialization, reflection, application domains, and security Delve into Roslyn, the modular C# 7.0 compiler-as-a-service

Shows how everyone has the capacity to succeed and how most use only a small portion of their talents.

Programmers run into parsing problems all the time. Whether it's a data format like JSON, a network protocol like SMTP, a server configuration file for Apache, a PostScript/PDF file, or a simple spreadsheet macro language--ANTLR v4 and this book will demystify the process. ANTLR v4 has been rewritten from scratch to make it easier than ever to build parsers and the language applications built on top. This completely rewritten new edition of the bestselling Definitive ANTLR Reference shows you how to take advantage of these new features. Build your own languages with ANTLR v4, using ANTLR's new advanced parsing technology. In this book, you'll learn how ANTLR automatically builds a data structure representing the input (parse tree) and generates code that can walk the tree (visitor). You can use that combination to implement data readers, language interpreters, and translators. You'll start by learning how to identify grammar patterns in language reference manuals and then slowly start building increasingly complex grammars. Next, you'll build applications based upon those grammars by walking the automatically generated parse trees. Then you'll tackle some nasty language problems by parsing files containing more than one language (such as XML, Java, and Javadoc). You'll also see how to take absolute control over parsing by embedding Java actions into the grammar. You'll learn directly from well-known parsing expert Terence Parr, the ANTLR creator and project lead. You'll master ANTLR grammar construction and learn how to build language tools using the built-in parse tree visitor mechanism. The book teaches using real-world examples and shows you how to use ANTLR to build such things as a data file reader, a JSON to XML translator, an R parser, and a Java class->interface extractor. This book is your ticket to becoming a parsing guru! What You Need: ANTLR 4.0 and above. Java development tools. Ant build system optional(needed for building ANTLR from source)

Learn to build configuration file readers, data readers, model-driven code generators, source-to-source translators, source analyzers, and interpreters. You don't need a background in computer science--ANTLR creator Terence Parr demystifies language implementation by breaking it down into the most common design patterns. Pattern by pattern, you'll learn the key skills you need to implement your own computer languages. Knowing how to create domain-specific languages (DSLs) can give you a huge productivity boost. Instead of writing code in a general-purpose programming language, you can first build a custom language tailored to make you efficient in a particular domain. The key is understanding the common patterns found across language implementations. Language Design Patterns identifies and condenses the most common design patterns, providing sample implementations of each. The pattern implementations use Java, but the patterns themselves are completely general. Some of the implementations use the well-known ANTLR parser generator, so readers will find this book an excellent source of ANTLR examples as well. But this book will benefit anyone interested in implementing languages, regardless of their tool of choice. Other language implementation books focus on compilers, which you rarely need in your daily life. Instead, Language Design Patterns shows you patterns you can use for all kinds of language applications. You'll learn to create configuration file readers, data readers, model-driven code generators, source-to-source translators, source analyzers, and interpreters. Each chapter groups related design patterns and, in each pattern, you'll get hands-on experience by building a complete sample implementation. By the time you finish the book, you'll know how to solve most common language implementation problems.

Need to learn how to wrap your head around Git, but don't need a lot of hand holding? Grab this book if you're new to Git, not to the world of programming. Git tasks displayed on two-page spreads provide all the context you need, without the extra fluff.

Build software that combines Python's expressivity with the performance and control of C (and C++). It's possible with Cython, the compiler and hybrid programming language used by foundational packages such as NumPy, and prominent in projects including Pandas, h5py, and scikits-learn. In this practical guide, you'll learn how to use Cython to improve Python's performance—up to 3000x— and to wrap C and C++ libraries in Python with ease. Author Kurt Smith takes you through Cython's capabilities, with sample code and in-depth practice exercises. If you're just starting with Cython, or want to go deeper, you'll learn how this language is an essential part of any performance-oriented Python programmer's arsenal. Use Cython's static typing to speed up Python code Gain hands-on experience using Cython features to boost your numeric-heavy Python Create new types with Cython—and see how fast object-oriented programming in Python can be Effectively organize Cython code into separate modules and packages without sacrificing performance Use Cython to give Pythonic interfaces to C and C++ libraries Optimize code with Cython's runtime and compile-time profiling tools Use Cython's prange function to parallelize loops transparently with OpenMP

"Seven Languages in Seven Weeks" presents a meaningful exploration of seven languages within a single book. Rather than serve as a complete reference or installation guide, the book hits what's essential and unique about each language.

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