

Go Programming Language The Addison Wesley Profess

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Introducing Go Caleb Doxsey 2016-01-07 Perfect for beginners familiar with programming basics, this hands-on guide provides an easy introduction to Go, the general-purpose programming language from Google. Author Caleb Doxsey covers the language's core features with step-by-step instructions and exercises in each chapter to help you practice what you learn. Go is a general-purpose programming language with a clean syntax and advanced features, including concurrency. This book provides the one-on-one support you need to get started with the language, with short, easily digestible chapters that build on one another. By the time you finish this book, not only will you be able to write real Go programs, you'll be ready to tackle advanced techniques. Jump into Go basics, including data types, variables, and control structures Learn complex types, such as slices, functions, structs, and interfaces Explore Go's core library and learn how to create your own package Write tests for your code by using the language's go test program Learn how to run programs concurrently with goroutines and channels Get suggestions to help you master the craft of programming

The C# Programming Language Anders Hejlsberg 2008-10-08 "Based on my own experience, I can safely say that every .NET developer who reads this will have at least one 'aha' moment and will be a better developer for it." —From the Foreword by Don Box The popular C# programming language combines the high productivity of rapid application development languages with the raw power of C and C++. Now, C# 3.0 adds functional programming techniques and LINQ, Language INtegrated Query. The C# Programming Language, Third Edition, is the authoritative and annotated technical reference for C# 3.0. Written by Anders Hejlsberg, the language's architect, and his colleagues, Mads Torgersen, Scott Wiltamuth, and Peter Golde, this volume has been completely updated and reorganized for C# 3.0. The book provides the complete specification of the language, along with descriptions, reference materials, code samples, and annotations from nine prominent C# gurus. The many annotations—a new feature in this edition—bring a depth and breadth of understanding rarely found in any programming book. As the main text of the book introduces the concepts of the C# language, cogent annotations explain why they are important, how they are used, how they relate to other languages, and even how they

evolved. This book is the definitive, must-have reference for any developer who wants to understand C#.

The Dart Programming Language Gilad Bracha 2015-12-07 Dart is a class-based, object-oriented language that simplifies the development of structured modern apps, scales from small scripts to large applications, and can be compiled to JavaScript for use in any modern browser. In this rigorous but readable introductory text, Dart specification lead Gilad Bracha fully explains both the language and the ideas that have shaped it. The Dart Programming Language offers an authoritative description of Dart for programmers, computer science students, and other well-qualified professionals. The text illuminates key programming constructs with significant examples, focusing on principles of the language, such as optional typing and pure object-orientation. Bracha thoroughly explains reflection in Dart, showing how it is evolving into a form that programmers can easily apply without creating excessively large programs. He also shares valuable insights into Dart's actor-style model for concurrency and asynchronous programming. Throughout, he covers both language semantics and the rationale for key features, helping you understand not just what Dart does, but why it works the way it does. You will learn about Dart's object model, in which everything is an object, even numbers and Boolean values How Dart programs are organized into modular libraries How Dart functions are structured, stored in variables, passed as parameters, and returned as results Dart's innovative approach to optional typing How Dart handles expressions and statements How to use Dart's implementation of reflection to introspect on libraries, classes, functions, and objects Isolates and other Dart features that support concurrency and distribution Register your product at informit.com/register for convenient access to downloads, updates, and corrections as they become available.

Hands-On High Performance with Go Bob Strecansky 2020-03-24 Proven methodologies and concurrency techniques that will help you write faster and better code with Go programming Key Features Explore Go's profiling tools to write faster programs by identifying and fixing bottlenecks Address Go-specific performance issues such as memory allocation and garbage collection Delve into the subtleties of concurrency and discover how to successfully implement it in everyday applications Book Description Go is an easy-to-write language that is popular among developers thanks to its features such as concurrency, portability, and ability to reduce complexity. This Golang book will teach you how to construct idiomatic Go code that is reusable and highly performant. Starting with an introduction to performance concepts, you'll understand the ideology behind Go's performance. You'll then learn how to effectively implement Go data structures and algorithms along with exploring data manipulation and organization to write programs for scalable software. This book covers channels and goroutines for parallelism and concurrency to write high-performance code for distributed systems. As you advance, you'll learn how to manage memory effectively. You'll explore the compute unified device architecture (CUDA) application programming interface (API), use containers to build Go code, and work with the Go build cache for quicker compilation. You'll also get to grips with profiling and tracing Go code for detecting bottlenecks in your system. Finally, you'll evaluate clusters and job queues for performance optimization and monitor the application for performance regression. By the end of this Go programming book, you'll be able to improve existing code and fulfill customer requirements by writing efficient programs. What you will learn Organize and manipulate data effectively with clusters and job queues Explore commonly applied Go data structures and algorithms Write anonymous functions in Go to build reusable apps Profile and trace Go

apps to reduce bottlenecks and improve efficiency Deploy, monitor, and iterate Go programs with a focus on performance Dive into memory management and CPU and GPU parallelism in Go Who this book is for This Golang book is a must for developers and professionals who have an intermediate-to-advanced understanding of Go programming, and are interested in improving their speed of code execution.

Get Programming with Go Roger Peppe 2018-08-27 Summary Get Programming with Go introduces you to the powerful Go language without confusing jargon or high-level theory. By working through 32 quick-fire lessons, you'll quickly pick up the basics of the innovative Go programming language! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Go is a small programming language designed by Google to tackle big problems. Large projects mean large teams with people of varying levels of experience. Go offers a small, yet capable, language that can be understood and used by anyone, no matter their experience. About the Book Hobbyists, newcomers, and professionals alike can benefit from a fast, modern language; all you need is the right resource! Get Programming with Go provides a hands-on introduction to Go language fundamentals, serving as a solid foundation for your future programming projects. You'll master Go syntax, work with types and functions, and explore bigger ideas like state and concurrency, with plenty of exercises to lock in what you learn. What's inside Language concepts like slices, interfaces, pointers, and concurrency Seven capstone projects featuring spacefaring gophers, Mars rovers, ciphers, and simulations All examples run in the Go Playground - no installation required! About the Reader This book is for anyone familiar with computer programming, as well as anyone with the desire to learn. About the Author Nathan Youngman organizes the Edmonton Go meetup and is a mentor with Canada Learning Code. Roger Peppé contributes to Go and runs the Newcastle upon Tyne Go meetup. Table of Contents Unit 0 - GETTING STARTED Get ready, get set, Go Unit 1 - IMPERATIVE PROGRAMMING A glorified calculator Loops and branches Variable scope Capstone: Ticket to Mars Unit 2 - TYPES Real numbers Whole numbers Big numbers Multilingual text Converting between types Capstone: The Vigenère cipher Unit 3 - BUILDING BLOCKS Functions Methods First-class functions Capstone: Temperature tables Unit 4 - COLLECTIONS Arrayed in splendor Slices: Windows into arrays A bigger slice The ever-versatile map Capstone: A slice of life Unit 5 - STATE AND BEHAVIOR A little structure Go's got no class Composition and forwarding Interfaces Capstone: Martian animal sanctuary Unit 6 - DOWN THE GOPHER HOLE A few pointers Much ado about nil To err is human Capstone: Sudoku rules Unit 7 - CONCURRENT PROGRAMMING Goroutines and concurrency Concurrent state Capstone: Life on Mars

GO Programming in easy steps Mike McGrath 2020-11-13 GO Programming in easy steps has an easy-to-follow style that will appeal to anyone who wants to begin coding computer programs with Google's Go programming language. The code in the listed steps within the book is color-coded making it easier for beginners to grasp. You need have no previous knowledge of any computer programming language so it's ideal for the newcomer. GO Programming in easy steps instructs you how to write code to create your own computer programs. It contains separate chapters demonstrating how to store information in data structures, how to control program flow using control structures, and how to create re-usable blocks of code in program functions. There are complete step-by-step example programs that demonstrate each aspect of coding, together with screenshots that illustrate the actual output when each program is executed. GO Programming in easy steps begins by explaining

how to easily create a programming environment on your own computer, so you can quickly begin to create your own working programs by copying the book's examples. After demonstrating the essential building blocks of computer programming it describes how to use data abstraction for object-oriented programming and demonstrates how to code goroutines and channels for concurrency in your programs. Table of Contents 1. Get Started 2. Store Values 3. Perform Operations 4. Control Flow 5. Produce Functions 6. Build Structures 7. Create Arrays 8. Harness Time 9. Manage Data 10. Handle Input 11. Employ Concurrency 12. Request Responses

The C++ Programming Language Bjarne Stroustrup 2013 Offers information on using the C++ programming language using the new C++11 standard, covering such topics as concurrency, facilities, standard libraries, and design techniques.

Go in Action Erik St. Martin 2015-11-04 Summary Go in Action introduces the Go language, guiding you from inquisitive developer to Go guru. The book begins by introducing the unique features and concepts of Go. Then, you'll get hands-on experience writing real-world applications including websites and network servers, as well as techniques to manipulate and convert data at speeds that will make your friends jealous. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Application development can be tricky enough even when you aren't dealing with complex systems programming problems like web-scale concurrency and real-time performance. While it's possible to solve these common issues with additional tools and frameworks, Go handles them right out of the box, making for a more natural and productive coding experience. Developed at Google, Go powers nimble startups as well as big enterprises—companies that rely on high-performing services in their infrastructure. About the Book Go in Action is for any intermediate-level developer who has experience with other programming languages and wants a jump-start in learning Go or a more thorough understanding of the language and its internals. This book provides an intensive, comprehensive, and idiomatic view of Go. It focuses on the specification and implementation of the language, including topics like language syntax, Go's type system, concurrency, channels, and testing. What's Inside Language specification and implementation Go's type system Internals of Go's data structures Testing and benchmarking About the Reader This book assumes you're a working developer proficient with another language like Java, Ruby, Python, C#, or C++. About the Authors William Kennedy is a seasoned software developer and author of the blog GoingGo.Net. Brian Ketelsen and Erik St. Martin are the organizers of GopherCon and coauthors of the Go-based Skynet framework. Table of Contents Introducing Go Go quick-start Packaging and tooling Arrays, slices, and maps Go's type system Concurrency Concurrency patterns Standard library Testing and benchmarking

Beginning Rust Programming Ric Messier 2021-03-09 Quickly learn the ropes with the Rust programming language using this practical, step-by-step guide In *Beginning Rust Programming*, accomplished programmer and author Ric Messier delivers a highly practical, real-world guide to coding with Rust. Avoiding dry, theoretical content and “Hello, world”-type tutorials of questionable utility, the book dives immediately into functional Rust programming that takes advantage of the language’s blazing speed and memory efficiency. Designed from the ground up to give you a running start to using the multiparadigm system programming language, this book will teach you to: Solve real-world computer science problems of practical importance Use Rust’s rich type system and ownership model to

guarantee memory-safety and thread-safety Integrate Rust with other programming languages and use it for embedded devices Perfect for programmers with some experience in other languages, like C or C++, Beginning Rust Programming is also a great pick for students new to programming and seeking a user-friendly and robust language with which to start their coding career.

Learning Go Programming Shubhangi Agarwal 2021-01-02 Deep dive into the essential topics in Go programming KEY FEATURES • Understand the fundamentals of Go language, its history, purpose and success stories. • Learn how to work with Variables, Constants, Data types, Operators, Control structures and Functions. • Get familiar and work with the standard Golang libraries. • Learn how to create custom packages and third-party package installation. • Understand how concurrency is achieved in Go with the use of Goroutines, Mutex and Channels. • Understand how an error is handled in Golang and supported libraries. DESCRIPTION This book is a unique read for both beginners and developers as it extensively covers topics ranging from fundamentals to advanced topics in Go programming. Basics such as Data types, Control structures and Loops in have been explained in-depth. A detailed description of Structs, Interfaces, Polymorphism and Concurrency will enable you to write professional codes using Golang. You will get an idea of error data type and how to recover it in Golang. You will be capable of using standard libraries, create custom packages and install third party packages in Go. Creation of functions and invoking them in Go have been vividly explained. By the end, you will be able to write advanced Golang code and at the same time, develop an application with Golang server. WHAT YOU WILL LEARN • Learn how to write codes using Control structures and Loops in Go • Get familiar with the type of Operators in Go • Learn how to work with Arrays and Slices in Go • Get familiar and work with the functions in Go • Learn how to implement Concurrent programming in Go WHO THIS BOOK IS FOR This book is for anyone who wants to learn the Golang programming language. Programmers and developers who are currently using Golang can use this book as a reference guide. TABLE OF CONTENTS 1. Introduction to Go 2. Environment Setup 3. Beginning With Go 4. Variables, Data Types and Constants 5. Operators 6. Control Structures 7. Functions 8. Packages in Go 9. Arrays and Slices 10. Strings 11. Pointers 12. Structures 13. Composition 14. Interfaces and polymorphism 15. Maps 16. Concurrency with Go 17. Mutex & Channels 18. Error Handling 19. Reflection 20. Build Web Application

Programming in Go Mark Summerfield 2012 A valuable programming reference provides a complete introduction to the Go programming language, covering all of Go's clean and easy to understand syntax and its built-in arrays, maps, slices and Unicode strings. Original.

The Way to Go Ivo Balbaert 2012 This book provides the reader with a comprehensive overview of the new open source programming language Go (in its first stable and maintained release Go 1) from Google. The language is devised with Java / C#-like syntax so as to feel familiar to the bulk of programmers today, but Go code is much cleaner and simpler to read, thus increasing the productivity of developers. You will see how Go: simplifies programming with slices, maps, structs and interfaces incorporates functional programming makes error-handling easy and secure simplifies concurrent and parallel programming with goroutines and channels And you will learn how to: make use of Go's excellent standard library program Go the idiomatic way using patterns and best practices in over 225 working examples and 135 exercises This book focuses on the aspects that the reader needs to take part in the coming software revolution using Go.

The C# Programming Language (Covering C# 4.0), Portable Documents Anders Hejlsberg 2010-10-31 The popular C# programming language combines the high productivity of rapid application development languages with the raw power of C and C++. Updated to cover the new features of C# 4.0, including dynamic binding, named and optional parameters, and covariant and contravariant generic types, this release takes the language to the next level by adding the ability to cleanly write programs that don't rely on static type definitions. This allows dynamic programming languages such as Python, Ruby, and JavaScript to feel native to C#. The C# Programming Language, Fourth Edition, continues to be the authoritative and annotated technical reference for C# 4.0. 7nbsp; Written by Anders Hejlsberg, the language's architect, and his colleagues, Mads Torgersen, Scott Wiltamuth, and Peter Golde, this volume has been completely updated for C# 4.0. The book provides the complete specification of the language, along with descriptions, reference materials, code samples, and annotations from twelve prominent C# gurus. The many annotations bring a depth and breadth of understanding rarely found in any programming book. As the main text of the book introduces the concepts of the C# language, cogent annotations explain why they are important, how they are used, how they relate to other languages, and even how they evolved. This book is the definitive, must-have reference for any developer who wants to understand C#. With annotations from: Brad Abrams, Joseph Albahari, Krzysztof Cwalina, Jesse Liberty, Eric Lippert, Christian Nagel, Vladimir Reshetnikov, Marek Safar, Chris Sells, Peter Sestoft, Jon Skeet, and Bill Wagner.

Head First Go Jay McGavren 2019-04-04 What will you learn from this book? Go makes it easy to build software that's simple, reliable, and efficient. And this book makes it easy for programmers like you to get started. Google designed Go for high-performance networking and multiprocessing, but—like Python and JavaScript—the language is easy to read and use. With this practical hands-on guide, you'll learn how to write Go code using clear examples that demonstrate the language in action. Best of all, you'll understand the conventions and techniques that employers want entry-level Go developers to know. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Go uses a visually rich format to engage your mind rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multisensory learning experience is designed for the way your brain really works.

The Elements of Programming Style Brian W. Kernighan 1974 Covers Expression, Structure, Common Blunders, Documentation, & Structured Programming Techniques

Mastering Go Mihalis Tsoukalos 2021-08-31 Master key features of Go, including advanced concepts like concurrency and working with JSON, to create and optimize real-world services, network servers, and clients Key Features This third edition of the bestselling guide to advanced Go programming has been overhauled and expanded to cover RESTful servers, the WebSocket protocol, and Go generics Use real-world exercises to build high-performance network servers and powerful command line utilities Packed with practical examples and utilities to apply to your own development work and administrative tasks Get clear explanations about Go nuances and features to simplify Go development Book Description Mastering Go is the essential guide to putting Go to work on real production systems. This freshly updated third edition includes topics like creating RESTful servers and clients, understanding Go generics, and developing gRPC servers and clients. Mastering Go was written for programmers who want to explore the capabilities of Go in practice. As you work

your way through the chapters, you'll gain confidence and a deep understanding of advanced Go concepts, including concurrency and the operation of the Go Garbage Collector, using Go with Docker, writing powerful command-line utilities, working with JavaScript Object Notation (JSON) data, and interacting with databases. You'll also improve your understanding of Go internals to optimize Go code and use data types and data structures in new and unexpected ways. This essential Go programming book will also take you through the nuances and idioms of Go with exercises and resources to fully embed your newly acquired knowledge. With the help of *Mastering Go*, you'll become an expert Go programmer by building Go systems and implementing advanced Go techniques in your projects. What you will learn

- Use Go in production
- Write reliable, high-performance concurrent code
- Manipulate data structures including slices, arrays, maps, and pointers
- Develop reusable packages with reflection and interfaces
- Become familiar with generics for effective Go programming
- Create concurrent RESTful servers, and build gRPC clients and servers
- Define Go structures for working with JSON data

Who this book is for You'll need to know the basics of Go before you get started with this book, but beyond that, anyone can sink their teeth into it. It's written primarily for Go programmers who have a bit of experience with the language and want to become expert practitioners.

The Go Programming Language Alan A. A. Donovan 2016

Go in 24 Hours, Sams Teach Yourself George Ornbø 2017-12-20 In just 24 sessions of one hour or less, *Sams Teach Yourself Go in 24 Hours* will help new and experienced programmers build software that's simpler, more reliable, and far more scalable. This book's straightforward, step-by-step approach guides you from setting up your environment through testing and deploying powerful solutions. Using practical examples, expert Go developer George Ornbø walks you through Go's fundamental constructs, demonstrates its breakthrough features for concurrent and network programming, and illuminates Go's powerful new idioms. Every lesson builds on what you've already learned, giving you a rock-solid foundation for real-world success. Step-by-step instructions carefully walk you through the most common Go programming tasks and techniques. Quizzes and exercises help you test your knowledge and stretch your skills. Practical, hands-on examples show you how to apply what you learn. Notes and Tips point out shortcuts, solutions, and problems to avoid. Two bonus chapters available online: Hour 25, "Creating a RESTful JSON API," and Hour 26 "Creating a TCP Chat Server" Learn how to...

- Get productive quickly with Go development tools and web servers
- Master core features, including strings, functions, structs, and methods
- Work with types, variables, functions, and control structures
- Make the most of Go's arrays, slices, and maps
- Write powerful concurrent software with Goroutines and channels
- Handle program errors smoothly
- Promote code reuse with packages
- Master Go's unique idioms for highly effective coding
- Use regular expressions and time/date functions
- Test and benchmark Go code
- Write basic command-line programs, HTTP servers, and HTTP clients
- Efficiently move Go code into production
- Build basic TCP chat servers and JSON APIs

Register your book at informit.com/register for convenient access to the two bonus chapters online, downloads, updates, and/or corrections as they become available.

The Go Programming Language Brian W. Kernighan 2015-08-27 *The Go Programming Language* is the authoritative resource for any programmer who wants to learn Go. It shows how to write clear and idiomatic Go to solve real-world problems. The book does not assume prior knowledge of Go nor experience with any specific language, so you'll find it accessible

whether you're most comfortable with JavaScript, Ruby, Python, Java, or C++. The first chapter is a tutorial on the basic concepts of Go, introduced through programs for file I/O and text processing, simple graphics, and web clients and servers. Early chapters cover the structural elements of Go programs: syntax, control flow, data types, and the organization of a program into packages, files, and functions. The examples illustrate many packages from the standard library and show how to create new ones of your own. Later chapters explain the package mechanism in more detail, and how to build, test, and maintain projects using the go tool. The chapters on methods and interfaces introduce Go's unconventional approach to object-oriented programming, in which methods can be declared on any type and interfaces are implicitly satisfied. They explain the key principles of encapsulation, composition, and substitutability using realistic examples. Two chapters on concurrency present in-depth approaches to this increasingly important topic. The first, which covers the basic mechanisms of goroutines and channels, illustrates the style known as communicating sequential processes for which Go is renowned. The second covers more traditional aspects of concurrency with shared variables. These chapters provide a solid foundation for programmers encountering concurrency for the first time. The final two chapters explore lower-level features of Go. One covers the art of metaprogramming using reflection. The other shows how to use the unsafe package to step outside the type system for special situations, and how to use the cgo tool to create Go bindings for C libraries. The book features hundreds of interesting and practical examples of well-written Go code that cover the whole language, its most important packages, and a wide range of applications. Each chapter has exercises to test your understanding and explore extensions and alternatives. Source code is freely available for download from <http://gopl.io/> and may be conveniently fetched, built, and installed using the go get command.

Hands-On Software Engineering with Golang Achilleas Anagnostopoulos 2020-01-24
Explore software engineering methodologies, techniques, and best practices in Go programming to build easy-to-maintain software that can effortlessly scale on demand
Key Features
Apply best practices to produce lean, testable, and maintainable Go code to avoid accumulating technical debt
Explore Go's built-in support for concurrency and message passing to build high-performance applications
Scale your Go programs across machines and manage their life cycle using Kubernetes
Book Description
Over the last few years, Go has become one of the favorite languages for building scalable and distributed systems. Its opinionated design and built-in concurrency features make it easy for engineers to author code that efficiently utilizes all available CPU cores. This Golang book distills industry best practices for writing lean Go code that is easy to test and maintain, and helps you to explore its practical implementation by creating a multi-tier application called Links 'R' Us from scratch. You'll be guided through all the steps involved in designing, implementing, testing, deploying, and scaling an application. Starting with a monolithic architecture, you'll iteratively transform the project into a service-oriented architecture (SOA) that supports the efficient out-of-core processing of large link graphs. You'll learn about various cutting-edge and advanced software engineering techniques such as building extensible data processing pipelines, designing APIs using gRPC, and running distributed graph processing algorithms at scale. Finally, you'll learn how to compile and package your Go services using Docker and automate their deployment to a Kubernetes cluster. By the end of this book, you'll know how to think like a professional software developer or engineer and write lean and efficient Go code. What you will learn
Understand different stages of the software development life cycle and the role of a software engineer
Create APIs using gRPC and leverage the middleware

offered by the gRPC ecosystem Discover various approaches to managing package dependencies for your projects Build an end-to-end project from scratch and explore different strategies for scaling it Develop a graph processing system and extend it to run in a distributed manner Deploy Go services on Kubernetes and monitor their health using Prometheus Who this book is for This Golang programming book is for developers and software engineers looking to use Go to design and build scalable distributed systems effectively. Knowledge of Go programming and basic networking principles is required.

Go Programming Language For Dummies Wei-Meng Lee 2021-04-27 Ready, set, program with Go! Now is the perfect time to learn the Go Programming Language. It's one of the most in-demand languages among tech recruiters and developers love its simplicity and power. Go Programming Language For Dummies is an easy way to add this top job skill to your toolkit. Written for novice and experienced coders alike, this book traverses basic syntax, writing functions, organizing data, building packages, and interfacing with APIs. Go—or GoLang, as it's also known—has proven to be a strong choice for developers creating applications for the cloud-based world we live in. This book will put you on the path to using the language that's created some of today's leading web applications, so you can steer your career where you want to Go! Learn how Go works and start writing programs and modules Install and implement the most powerful third-party Go packages Use Go in conjunction with web services and MySQL databases Keep your codebase organized and use Go to structure data With this book, you can join the growing numbers of developers using Go to create 21st century solutions. Step inside to take start writing code that puts data in users' hands.

Hands-On Software Architecture with Golang Jyotishwarup Raiturkar 2018-12-07 Understand the principles of software architecture with coverage on SOA, distributed and messaging systems, and database modeling Key Features Gain knowledge of architectural approaches on SOA and microservices for architectural decisions Explore different architectural patterns for building distributed applications Migrate applications written in Java or Python to the Go language Book Description Building software requires careful planning and architectural considerations; Golang was developed with a fresh perspective on building next-generation applications on the cloud with distributed and concurrent computing concerns. Hands-On Software Architecture with Golang starts with a brief introduction to architectural elements, Go, and a case study to demonstrate architectural principles. You'll then move on to look at code-level aspects such as modularity, class design, and constructs specific to Golang and implementation of design patterns. As you make your way through the chapters, you'll explore the core objectives of architecture such as effectively managing complexity, scalability, and reliability of software systems. You'll also work through creating distributed systems and their communication before moving on to modeling and scaling of data. In the concluding chapters, you'll learn to deploy architectures and plan the migration of applications from other languages. By the end of this book, you will have gained insight into various design and architectural patterns, which will enable you to create robust, scalable architecture using Golang. What you will learn Understand architectural paradigms and deep dive into Microservices Design parallelism/concurrency patterns and learn object-oriented design patterns in Go Explore API-driven systems architecture with introduction to REST and GraphQL standards Build event-driven architectures and make your architectures anti-fragile Engineer scalability and learn how to migrate to Go from other languages Get to grips with deployment considerations with CICD pipeline, cloud deployments, and so on Build an end-to-end e-commerce (travel) application backend in Go Who this book is for Hands-On

Software Architecture with Golang is for software developers, architects, and CTOs looking to use Go in their software architecture to build enterprise-grade applications. Programming knowledge of Golang is assumed.

Learn Data Structures and Algorithms with Golang Bhagvan Kommadi 2019-03-30 Explore Golang's data structures and algorithms to design, implement, and analyze code in the professional setting Key Features Learn the basics of data structures and algorithms and implement them efficiently Use data structures such as arrays, stacks, trees, lists and graphs in real-world scenarios Compare the complexity of different algorithms and data structures for improved code performance Book Description Golang is one of the fastest growing programming languages in the software industry. Its speed, simplicity, and reliability make it the perfect choice for building robust applications. This brings the need to have a solid foundation in data structures and algorithms with Go so as to build scalable applications. Complete with hands-on tutorials, this book will guide you in using the best data structures and algorithms for problem solving. The book begins with an introduction to Go data structures and algorithms. You'll learn how to store data using linked lists, arrays, stacks, and queues. Moving ahead, you'll discover how to implement sorting and searching algorithms, followed by binary search trees. This book will also help you improve the performance of your applications by stringing data types and implementing hash structures in algorithm design. Finally, you'll be able to apply traditional data structures to solve real-world problems. By the end of the book, you'll have become adept at implementing classic data structures and algorithms in Go, propelling you to become a confident Go programmer. What you will learn Improve application performance using the most suitable data structure and algorithm Explore the wide range of classic algorithms such as recursion and hashing algorithms Work with algorithms such as garbage collection for efficient memory management Analyze the cost and benefit trade-off to identify algorithms and data structures for problem solving Explore techniques for writing pseudocode algorithm and ace whiteboard coding in interviews Discover the pitfalls in selecting data structures and algorithms by predicting their speed and efficiency Who this book is for This book is for developers who want to understand how to select the best data structures and algorithms that will help solve coding problems. Basic Go programming experience will be an added advantage.

The Rust Programming Language (Covers Rust 2018) Steve Klabnik 2019-09-03 The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features--from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as:

- Ownership and borrowing, lifetimes, and traits
- Using Rust's memory safety guarantees to build fast, safe programs
- Testing, error handling, and effective refactoring
- Generics, smart pointers, multithreading, trait objects, and advanced pattern matching
- Using Cargo, Rust's built-in package manager, to build, test, and document your code and manage dependencies
- How best to use Rust's advanced compiler with compiler-led programming techniques

You'll find plenty of code

examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multithreaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendixes on Rust development tools and editions.

Concurrency in Go Katherine Cox-Buday 2017-07-19 Concurrency can be notoriously difficult to get right, but fortunately, the Go open source programming language makes working with concurrency tractable and even easy. If you're a developer familiar with Go, this practical book demonstrates best practices and patterns to help you incorporate concurrency into your systems. Author Katherine Cox-Buday takes you step-by-step through the process. You'll understand how Go chooses to model concurrency, what issues arise from this model, and how you can compose primitives within this model to solve problems. Learn the skills and tooling you need to confidently write and implement concurrent systems of any size. Understand how Go addresses fundamental problems that make concurrency difficult to do correctly Learn the key differences between concurrency and parallelism Dig into the syntax of Go's memory synchronization primitives Form patterns with these primitives to write maintainable concurrent code Compose patterns into a series of practices that enable you to write large, distributed systems that scale Learn the sophistication behind goroutines and how Go's runtime stitches everything together

Go in Practice Matt Farina 2016-08-15 Summary *Go in Practice* guides you through 70 real-world techniques in key areas like package management, microservice communication, and more. Following a cookbook-style Problem/Solution/Discussion format, this practical handbook builds on the foundational concepts of the Go language and introduces specific strategies you can use in your day-to-day applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Go may be the perfect systems language. Built with simplicity, concurrency, and modern applications in mind, Go provides the core tool set for rapidly building web, cloud, and systems applications. If you know a language like Java or C#, it's easy to get started with Go; the trick is finding the practical dirt-under-the-fingernails techniques that you need to build production-ready code. About the Book *Go in Practice* guides you through dozens of real-world techniques in key areas. Following a cookbook-style Problem/Solution/Discussion format, this practical handbook builds on the foundational concepts of the Go language and introduces specific strategies you can use in your day-to-day applications. You'll learn techniques for building web services, using Go in the cloud, testing and debugging, routing, network applications, and much more. After finishing this book, you will be ready to build sophisticated cloud-native Go applications. What's Inside Dozens of specific, practical Golang techniques Using Go for devops and cloudops Writing RESTful web services and microservices Practical web dev techniques About the Reader Written for experienced developers who have already started exploring Go and want to use it effectively in a production setting. About the Authors Matt Farina is a software architect at Deis. Matt Butcher is a Principal Engineer in the Advanced Technology Group at Hewlett Packard Enterprise. They are both authors, speakers, and regular open source contributors. Table of Contents PART 1 - BACKGROUND AND FUNDAMENTALS Getting into Go A solid foundation Concurrency in Go PART 2 - WELL-ROUNDED APPLICATIONS Handling errors and panic Debugging and testing PART 3 - AN INTERFACE FOR YOUR APPLICATIONS HTML and email template patterns Serving and receiving assets and forms Working with web services

PART 4 - TAKING YOUR APPLICATIONS TO THE CLOUD Using the cloud Communication between cloud services Reflection and code generation

Hands-on Go Programming Sachchidanand Singh 2021-03-05 An easy-to-understand guide that helps you get familiar with the basics and advanced concepts in Golang KEY FEATURES ● Everything you need to know on how to use Go programming. ● Illustrated Examples on Go Functions, Control Flows, and Arrays. ● Deep Dive into Slices, Maps, Structs, Error Handling and Concurrency in Golang. DESCRIPTION Hands-on Go Programming is designed to get you up and running as fast as possible with Go. You will not just learn the basics but get introduced to how to use advanced features of Golang. The book begins with the basic concepts of Data types, Constants, Variables, Operators, Reassignment, and Redeclaration. Moving ahead, we explore and learn the use of Functions, Control flows, Arrays, Slices, Maps, and Structs using some great examples and illustrations. We then get to know about Methods in Golang. Furthermore, we learn about complex aspects of Golang such as Interfaces, Pointers, Concurrency and Error Handling. By the end, you will be familiar with both the basics and advanced concepts of Go and start developing critical programs working using this language. WHAT YOU WILL LEARN ● Learn Golang syntaxes, control structures and Error Handling in-depth. ● Learn to declare, create and modify Slices, Maps and Struct in Go. ● Build your own concurrent programs with Goroutines and Channels. ● Deep Dive into Error handling in Golang. WHO THIS BOOK IS FOR Anyone who knows basic programming can use this book to upskill themselves in Golang. This book is also for Engineering students, IT/Software professionals, and existing Go programmers. Architects and Developers working in Cloud, Networking, and DevOps can use this book to learn Go programming and apply the knowledge gained to design and build solutions in their respective domains. TABLE OF CONTENTS 1. Chapter 1 Introduction 2. Chapter 2 Functions 3. Chapter 3 Control Flows 4. Chapter 4 Arrays 5. Chapter 5 Slices 6. Chapter 6 Maps 7. Chapter 7 Structs 8. Chapter 8 Methods 9. Chapter 9 Interfaces 10. Chapter 10 Pointers 11. Chapter 11 Concurrency 12. Chapter 12 Error Handling

Advanced Programming Language Design Raphael A. Finkel 1996
0805311912B04062001

An Introduction to Programming in Go Caleb Doxsey 2012-09-03 This book is a short, concise introduction to computer programming using the language Go. Designed by Google, Go is a general purpose programming language with modern features, clean syntax and a robust well-documented common library, making it an ideal language to learn as your first programming language.

Pro Go Adam Freeman 2022-01-28 Best-selling author Adam Freeman explains how to get the most from Go, starting from the basics and building up to the most advanced and sophisticated features. You will learn how Go builds on a simple and consistent type system to create a comprehensive and productive development experience that produces fast and robust applications that run across platforms. Go, also known as Golang, is the concise and efficient programming language designed by Google for creating high-performance, cross-platform applications. Go combines strong static types with simple syntax and a comprehensive standard library to increase programmer productivity, while still supporting features such as concurrent/parallel programming. Each topic is covered in a clear, concise, no-nonsense approach that is packed with the details you need to learn to be truly effective.

Chapters include common problems and how to avoid them. What You Will Learn Gain a solid understanding of the Go language and tools Gain in-depth knowledge of the Go standard library Use Go for concurrent/parallel tasks Use Go for client- and server-side development Who This Book Is For Experienced developers who want to use Go to create applications

Mastering Go Mihalis Tsoukalos 2019-08-29 Publisher's Note: This edition from 2019 is outdated and is not compatible with the latest version of Go. A new third edition, updated for 2021 and featuring the latest in Go programming, has now been published. Key Features • Second edition of the bestselling guide to advanced Go programming, expanded to cover machine learning, more Go packages and a range of modern development techniques • Completes the Go developer's education with real-world guides to building high-performance production systems • Packed with practical examples and patterns to apply to your own development work • Clearly explains Go nuances and features to remove the frustration from Go development Book Description Often referred to (incorrectly) as Golang, Go is the high-performance systems language of the future. *Mastering Go, Second Edition* helps you become a productive expert Go programmer, building and improving on the groundbreaking first edition. *Mastering Go, Second Edition* shows how to put Go to work on real production systems. For programmers who already know the Go language basics, this book provides examples, patterns, and clear explanations to help you deeply understand Go's capabilities and apply them in your programming work. The book covers the nuances of Go, with in-depth guides on types and structures, packages, concurrency, network programming, compiler design, optimization, and more. Each chapter ends with exercises and resources to fully embed your new knowledge. This second edition includes a completely new chapter on machine learning in Go, guiding you from the foundation statistics techniques through simple regression and clustering to classification, neural networks, and anomaly detection. Other chapters are expanded to cover using Go with Docker and Kubernetes, Git, WebAssembly, JSON, and more. If you take the Go programming language seriously, the second edition of this book is an essential guide on expert techniques. What you will learn • Clear guidance on using Go for production systems • Detailed explanations of how Go internals work, the design choices behind the language, and how to optimize your Go code • A full guide to all Go data types, composite types, and data structures • Master packages, reflection, and interfaces for effective Go programming • Build high-performance systems networking code, including server and client-side applications • Interface with other systems using WebAssembly, JSON, and gRPC • Write reliable, high-performance concurrent code • Build machine learning systems in Go, from simple statistical regression to complex neural networks Who this book is for *Mastering Go, Second Edition* is for Go programmers who already know the language basics, and want to become expert Go practitioners. Table of Contents • Go and the Operating System • Understanding Go Internals • Working with Basic Go Data Types • The Uses of Composite Types • How to Enhance Go Code with Data Structures • What You Might Not Know About Go Packages and functions • Reflection and Interfaces for All Seasons • Telling a Unix System What to Do • Concurrency in Go: Goroutines, Channels, and Pipelines • Concurrency in Go: Advanced Topics • Code Testing, Optimization, and Profiling • The Foundations of Network Programming in Go • Network Programming: Building Your Own Servers and Clients • Machine Learning in Go Review "Mastering Go - Second Edition is a must-read for developers wanting to expand their knowledge of the language or wanting to pick it up from scratch" -- Alex Ellis - Founder of OpenFaaS Ltd, CNCF Ambassador

Go Web Programming Sau Sheong Chang 2016-07-05 Summary Go Web Programming

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teaches you how to build scalable, high-performance web applications in Go using modern design principles. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The Go language handles the demands of scalable, high-performance web applications by providing clean and fast compiled code, garbage collection, a simple concurrency model, and a fantastic standard library. It's perfect for writing microservices or building scalable, maintainable systems. About the Book Go Web Programming teaches you how to build web applications in Go using modern design principles. You'll learn how to implement the dependency injection design pattern for writing test doubles, use concurrency in web applications, and create and consume JSON and XML in web services. Along the way, you'll discover how to minimize your dependence on external frameworks, and you'll pick up valuable productivity techniques for testing and deploying your applications. What's Inside Basics Testing and benchmarking Using concurrency Deploying to standalone servers, PaaS, and Docker Dozens of tips, tricks, and techniques About the Reader This book assumes you're familiar with Go language basics and the general concepts of web development. About the Author Sau Sheong Chang is Managing Director of Digital Technology at Singapore Power and an active contributor to the Ruby and Go communities. Table of Contents PART 1 GO AND WEB APPLICATIONS Go and web applications Go Chat PART 2 BASIC WEB APPLICATIONS Handling requests Processing requests Displaying content Storing data PART 3 BEING REAL Go web services Testing your application Leveraging Go concurrency Deploying Go

The Go Programming Language Alan A. Donovan 2015-11-16 The Go Programming Language is the authoritative resource for any programmer who wants to learn Go. It shows how to write clear and idiomatic Go to solve real-world problems. The book does not assume prior knowledge of Go nor experience with any specific language, so you'll find it accessible whether you're most comfortable with JavaScript, Ruby, Python, Java, or C++. The first chapter is a tutorial on the basic concepts of Go, introduced through programs for file I/O and text processing, simple graphics, and web clients and servers. Early chapters cover the structural elements of Go programs: syntax, control flow, data types, and the organization of a program into packages, files, and functions. The examples illustrate many packages from the standard library and show how to create new ones of your own. Later chapters explain the package mechanism in more detail, and how to build, test, and maintain projects using the go tool. The chapters on methods and interfaces introduce Go's unconventional approach to object-oriented programming, in which methods can be declared on any type and interfaces are implicitly satisfied. They explain the key principles of encapsulation, composition, and substitutability using realistic examples. Two chapters on concurrency present in-depth approaches to this increasingly important topic. The first, which covers the basic mechanisms of goroutines and channels, illustrates the style known as communicating sequential processes for which Go is renowned. The second covers more traditional aspects of concurrency with shared variables. These chapters provide a solid foundation for programmers encountering concurrency for the first time. The final two chapters explore lower-level features of Go. One covers the art of metaprogramming using reflection. The other shows how to use the unsafe package to step outside the type system for special situations, and how to use the cgo tool to create Go bindings for C libraries. The book features hundreds of interesting and practical examples of well-written Go code that cover the whole language, its most important packages, and a wide range of applications. Each chapter has exercises to test your understanding and explore extensions and alternatives. Source code is freely available for download from <http://gopl.io/> and may be conveniently

fetches, builds, and installs using the `go get` command.

Black Hat Go Tom Steele 2020-02-04 Like the best-selling Black Hat Python, Black Hat Go explores the darker side of the popular Go programming language. This collection of short scripts will help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset. Black Hat Go explores the darker side of Go, the popular programming language revered by hackers for its simplicity, efficiency, and reliability. It provides an arsenal of practical tactics from the perspective of security practitioners and hackers to help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset, all using the power of Go. You'll begin your journey with a basic overview of Go's syntax and philosophy and then start to explore examples that you can leverage for tool development, including common network protocols like HTTP, DNS, and SMB. You'll then dig into various tactics and problems that penetration testers encounter, addressing things like data pilfering, packet sniffing, and exploit development. You'll create dynamic, pluggable tools before diving into cryptography, attacking Microsoft Windows, and implementing steganography. You'll learn how to:

- Make performant tools that can be used for your own security projects
- Create usable tools that interact with remote APIs
- Scrape arbitrary HTML data
- Use Go's standard package, `net/http`, for building HTTP servers
- Write your own DNS server and proxy
- Use DNS tunneling to establish a C2 channel out of a restrictive network
- Create a vulnerability fuzzer to discover an application's security weaknesses
- Use plug-ins and extensions to future-proof products
- Build an RC2 symmetric-key brute-forcer
- Implant data within a Portable Network Graphics (PNG) image.

Are you ready to add to your arsenal of security tools? Then let's Go!

Concepts Of Programming Languages Sebasta 2016 Introduces students to the fundamental concepts of computer programming languages and provides them with the tools necessary to evaluate contemporary and future languages. An in-depth discussion of programming language structures, such as syntax and lexical and syntactic analysis, also prepares students to study compiler design. The Eleventh Edition maintains an up-to-date discussion on the topic with the removal of outdated languages such as Ada and Fortran. The addition of relevant new topics and examples such as reflection and exception handling in Python and Ruby add to the currency of the text. Through a critical analysis of design issues of various program languages, Concepts of Programming Languages teaches students the essential differences between computing with specific languages. Robert W. Sebasta is Associate Professor Emeritus, Computer Science Office, UCCS, University of Colorado at Colorado Springs. -- Publisher's note.

The C++ Programming Language Bjarne Stroustrup 2000 The most widely read and trusted guide to the C++ language, standard library, and design techniques includes significant new updates and two new appendices on internationalization and Standard Library technicalities. It is the only book with authoritative, accessible coverage of every major element of ISO/ANSI Standard C++.

The Practice of Programming Brian W. Kernighan 1999-02-09 With the same insight and authority that made their book The Unix Programming Environment a classic, Brian Kernighan and Rob Pike have written The Practice of Programming to help make individual programmers more effective and productive. The practice of programming is more than just

writing code. Programmers must also assess tradeoffs, choose among design alternatives, debug and test, improve performance, and maintain software written by themselves and others. At the same time, they must be concerned with issues like compatibility, robustness, and reliability, while meeting specifications. The Practice of Programming covers all these topics, and more. This book is full of practical advice and real-world examples in C, C++, Java, and a variety of special-purpose languages. It includes chapters on: debugging: finding bugs quickly and methodically testing: guaranteeing that software works correctly and reliably performance: making programs faster and more compact portability: ensuring that programs run everywhere without change design: balancing goals and constraints to decide which algorithms and data structures are best interfaces: using abstraction and information hiding to control the interactions between components style: writing code that works well and is a pleasure to read notation: choosing languages and tools that let the machine do more of the work Kernighan and Pike have distilled years of experience writing programs, teaching, and working with other programmers to create this book. Anyone who writes software will profit from the principles and guidance in The Practice of Programming .

Cloud Native Go Kevin Hoffman 2016-12-05 The Complete Guide to Building Cloud-Based Services Cloud Native Go shows developers how to build massive cloud applications that meet the insatiable demands of today's customers, and will dynamically scale to handle virtually any volume of data, traffic, or users. Kevin Hoffman and Dan Nemeth describe the modern cloud-native application in detail, illuminating factors, disciplines, and habits associated with rapid, reliable cloud-native development. They also introduce Go, a "simply elegant" high-performance language that is especially well-suited for cloud development. You'll walk through creating microservices in Go, adding front-end web components using ReactJS and Flux, and mastering advanced Go-based cloud-native techniques. Hoffman and Nemeth show how to build a continuous delivery pipeline with tools like Wercker, Docker, and Dockerhub; automatically push apps to leading platforms; and systematically monitor app performance in production. Learn "The Way of the Cloud": why developing good cloud software is fundamentally about mindset and discipline Discover why Go is ideal for cloud-native microservices development Plan cloud apps that support continuous delivery and deployment Design service ecosystems, and then build them in a test-first manner Push work-in-progress to a cloud Use Event Sourcing and CQRS patterns to react and respond to enormous volume and throughput Secure cloud-based web applications: do's, don'ts, and options Create reactive applications in the cloud with third-party messaging providers Build massive-scale, cloud-friendly GUIs with React and Flux Monitor dynamic scaling, failover, and fault tolerance in the cloud

Learning Go Jon Bodner 2021-03-02 Go is rapidly becoming the preferred language for building web services. While there are plenty of tutorials available that teach Go's syntax to developers with experience in other programming languages, tutorials aren't enough. They don't teach Go's idioms, so developers end up recreating patterns that don't make sense in a Go context. This practical guide provides the essential background you need to write clear and idiomatic Go. No matter your level of experience, you'll learn how to think like a Go developer. Author Jon Bodner introduces the design patterns experienced Go developers have adopted and explores the rationale for using them. You'll also get a preview of Go's upcoming generics support and how it fits into the language. Learn how to write idiomatic code in Go and design a Go project Understand the reasons for the design decisions in Go Set up a Go development environment for a solo developer or team Learn how and when to use reflection,

unsafe, and cgo Discover how Go's features allow the language to run efficiently Know which Go features you should use sparingly or not at all

The Go Programming Language Phrasebook David Chisnall 2012-05-01 The Go Programming Language Phrasebook Essential Go code and idioms for all facets of the development process This guide gives you the code “phrases” you need to quickly and effectively complete a wide variety of projects with Go, today’s most exciting new programming language. Tested, easy-to-adapt code examples illuminate every step of Go development, helping you write highly scalable, concurrent software. You’ll master Go-specific idioms for working with strings, collections, arrays, error handling, goroutines, slices, maps, channels, numbers, dates, times, files, networking, web apps, the runtime, and more. Concise and Accessible Easy to carry and easy to use: Ditch all those bulky books for one portable pocket guide Flexible and Functional Packed with more than 100 customizable code snippets: Quickly create solid Go code to solve just about any problem Register your book at informit.com/register for convenient access to downloads, updates, and corrections as they become available.