

Go Programming Language The Addison Wesley Professional Computing

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 Rust is a new systems programming language that combines the performance and low-level control of C and C++ with memory safety and thread safety. Rust's modern, flexible types ensure your program is free of null pointer dereferences, double frees, dangling pointers, and similar bugs, all at compile time, without runtime overhead. In multi-threaded code, Rust catches data races at compile time, making concurrency much easier to use. Written by two experienced systems programmers, this book explains how Rust manages to bridge the gap between performance and safety, and how you can take advantage of it. Topics include: How Rust represents values in memory (with diagrams) Complete explanations of ownership, moves, borrows, and lifetimes Cargo, rustdoc, unit tests, and how to publish your code on crates.io, Rust's public package repository High-level features like generic code, closures, collections, and

iterators that make Rust productive and flexible Concurrency in Rust: threads, mutexes, channels, and atomics, all much safer to use than in C or C++ Unsafe code, and how to preserve the integrity of ordinary code that uses it Extended examples illustrating how pieces of the language fit together

Discover practical techniques to build cloud-native apps that are scalable, reliable, and always available. Key Features Build well-designed and secure microservices. Enrich your microservices with continuous integration and monitoring. Containerize your application with Docker Deploy your application to AWS. Learn how to utilize the powerful AWS services from within your application Book Description Awarded as one of the best books of all time by BookAuthority, Cloud Native Programming with Golang will take you on a journey into the world of microservices and cloud computing with the help of Go. Cloud computing and microservices are two very important concepts in modern software architecture. They represent key skills that ambitious software engineers need to acquire in order to design and build software applications capable of performing and scaling. Go is a modern cross-platform programming language that is very powerful yet simple; it is an excellent choice for microservices and cloud applications. Go is gaining more and more popularity, and becoming a very attractive skill. This book starts by covering the software architectural patterns of cloud applications, as well as practical concepts regarding how to scale, distribute, and deploy those applications. You will also learn how to build a JavaScript-based front-end for your application, using TypeScript and React. From there, we dive into commercial cloud offerings by covering AWS. Finally, we conclude our book by providing some overviews of other concepts and technologies that you can explore, to move from where the book leaves off. What you will learn Understand modern software applications architectures Build secure microservices that can effectively communicate with other services Get to know about event-driven architectures by diving into message queues such as Kafka, Rabbitmq, and AWS SQS. Understand key modern database technologies such as MongoDB, and Amazon's DynamoDB Leverage the power of containers Explore Amazon cloud services fundamentals Know how to utilize the power of the Go language to access key services in the Amazon cloud such as S3, SQS, DynamoDB and more. Build front-end applications using ReactJS with Go Implement CD for modern applications Who this book is for This book is for developers who want to begin building secure, resilient, robust, and scalable Go applications that are cloud native. Some knowledge of the Go programming language should be sufficient. To build the front-end application, you will also need some knowledge of JavaScript programming.

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, *HeadFirst 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.

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 CI/CD 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.

Function literals, Monads, Lazy evaluation, Currying, and more
About This Book Write concise and maintainable code with streams and high-order functions Understand the benefits of currying your Golang functions Learn the most effective design patterns for functional programming and learn when to apply

each of them Build distributed MapReduce solutions using Go Who This Book Is For This book is for Golang developers comfortable with OOP and interested in learning how to apply the functional paradigm to create robust and testable apps. Prior programming experience with Go would be helpful, but not mandatory.

What You Will Learn Learn how to compose reliable applications using high-order functions Explore techniques to eliminate side-effects using FP techniques such as currying Use first-class functions to implement pure functions Understand how to implement a lambda expression in Go Compose a working application using the decorator pattern Create faster programs using lazy evaluation Use Go concurrency constructs to compose a functionality pipeline Understand category theory and what it has to do with FP In Detail Functional programming is a popular programming paradigm that is used to simplify many tasks and will help you write flexible and succinct code. It allows you to decompose your programs into smaller, highly reusable components, without applying conceptual restraints on how the software should be modularized. This book bridges the language gap for Golang developers by showing you how to create and consume functional constructs in Golang. The book is divided into four modules. The first module explains the functional style of programming; pure functional programming (FP), manipulating collections, and using high-order functions. In the second module, you will learn design patterns that you can use to build FP-style applications. In the next module, you will learn FP techniques that you can use to improve your API signatures, to increase performance, and to build better Cloud-native applications. The last module delves into the underpinnings of FP with an introduction to category theory for software developers to give you a real understanding of what pure functional programming is all about, along with applicable code examples. By the end of the book, you will be adept at building applications the functional way. Style and approach This book takes a pragmatic approach and shows you techniques to write better functional constructs in Golang. We'll also show you how use these concepts to build robust and testable apps.

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* .

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

Your way to Go (A Complete Guide To Becoming A Pro At Go Programming) is a reliable resource for anyone who wants to learn code using Go. It gives a clear understanding about how to write a professional code and solves real-world problems. As the title says clearly, a complete guide to becoming a pro at go programming means no prior experience is required in programming. Your way to Go is the solution to make you understand about go programming from the fundamentals to a professional level, with detailed explanation about each topic and about the syntax with the help of maximum examples. It covers most of the possible ways to write code in Go. It is a reference guide to solving complex problems related to data structure and algorithms. The book has around nineteen chapters and covers Variables, Keywords, Basic Datatypes, Arrays, Slices, Maps, Structs, Conditions, Looping, Functions, Methods, Packages, Interfaces, Goroutines, Channels, Concurrency, Race conditions, Mutual Exclusion, Memory Synchronization and Race Detectors.

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

Go is rapidly becoming the preferred language for building web services. There are plenty of tutorials available that teach Go's syntax to developers with experience in other programming languages. But 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 reveals design patterns that experienced Go developers have adopted and the rationale for them. You'll learn how to structure your project and choose the proper tools and libraries to create successful software. 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 Learn how Go's features allow the language to run efficiently Know which Go features

you should use sparingly, or not at all Learn the future of Go, including Generics Build simple, maintainable, and easy to deploy machine learning applications. About This Book Build simple, but powerful, machine learning applications that leverage Go's standard library along with popular Go packages. Learn the statistics, algorithms, and techniques needed to successfully implement machine learning in Go Understand when and how to integrate certain types of machine learning model in Go applications. Who This Book Is For This book is for Go developers who are familiar with the Go syntax and can develop, build, and run basic Go programs. If you want to explore the field of machine learning and you love Go, then this book is for you! Machine Learning with Go will give readers the practical skills to perform the most common machine learning tasks with Go. Familiarity with some statistics and math topics is necessary. What You Will Learn Learn about data gathering, organization, parsing, and cleaning. Explore matrices, linear algebra, statistics, and probability. See how to evaluate and validate models. Look at regression, classification, clustering. Learn about neural networks and deep learning Utilize times series models and anomaly detection. Get to grip with techniques for deploying and distributing analyses and models. Optimize machine learning workflow techniques In Detail The mission of this book is to turn readers into productive, innovative data analysts who leverage Go to build robust and valuable applications. To this end, the book clearly introduces the technical aspects of building predictive models in Go, but it also helps the reader understand how machine learning workflows are being applied in real-world scenarios. Machine Learning with Go shows readers how to be productive in machine learning while also producing applications that maintain a high level of integrity. It also gives readers patterns to overcome challenges that are often encountered when trying to integrate machine learning in an engineering organization. The readers will begin by gaining a solid understanding of how to gather, organize, and parse real-work data from a variety of sources. Readers will then develop a solid statistical toolkit that will allow them to quickly understand gain intuition about the content of a dataset. Finally, the readers will gain hands-on experience implementing essential machine learning techniques (regression, classification, clustering, and so on) with the relevant Go packages. Finally, the reader will have a solid machine learning mindset and a powerful Go toolkit of techniques, packages, and example implementations. Style and approach This book connects the fundamental, theoretical concepts behind Machine Learning to practical implementations using the Go programming language.

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

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.

Tackle the trickiest of problems in Go programming with this practical guide
Key Features Develop applications for different domains using modern programming techniques Tackle common problems when it comes to parallelism, concurrency, and reactive programming in Go Work with ready-to-execute code based on the latest version of Go
Book Description Go (or Golang) is a statically typed programming language developed at Google. Known for its vast standard library, it also provides features such as garbage collection, type safety, dynamic-typing capabilities, and additional built-in types. This book will serve as a reference while implementing Go features to build your own applications. This Go cookbook helps you put into practice the advanced concepts and libraries that Golang offers. The recipes in the book follow best practices such as documentation, testing, and vendoring with Go modules, as well as performing clean abstractions using interfaces. You'll learn how code works and the common pitfalls to watch out for. The book covers basic type and error handling, and then moves on to explore applications, such as websites, command-line tools, and filesystems, that interact with users. You'll even get to grips with parallelism, distributed systems, and performance tuning. By the end of the book, you'll be able to use open source code and concepts in Go programming to build enterprise-class applications without any hassle. What you will learn Work with third-party Go projects and modify them for your use Write Go code using modern best practices Manage your dependencies with the new Go module system Solve common problems encountered when dealing with backend systems or DevOps Explore the Go standard library and its uses Test, profile, and fine-tune Go applications Who this book is for If you're a web developer, programmer, or enterprise developer looking for quick solutions to common and not-so-common problems in Go programming, this book is for you. Basic knowledge of the Go language is assumed.

Dive deep into the Go language and become an expert Go developer
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.

The Go Programming Language Addison-Wesley Professional

Build real-world, production-ready solutions in Go using cutting-edge technology and techniques
About This Book
Get up to date with Go and write code capable of delivering massive world-class scale performance and availability
Learn to apply the nuances of the Go language, and get to know the open source community that surrounds it to implement a wide range of start-up quality projects
Write interesting and clever but simple code, and learn skills and techniques that are directly transferrable to your own projects
Who This Book Is For
If you are familiar with Go and are want to put your knowledge to work, then this is the book for you. Go programming knowledge is a must.
What You Will Learn
Build quirky and fun projects from scratch while exploring patterns, practices, and techniques, as well as a range of different technologies
Create websites and data services capable of massive scale using Go's net/http package, exploring RESTful patterns as well as low-latency WebSocket APIs
Interact with a variety of remote web services to consume capabilities ranging from authentication and authorization to a fully functioning thesaurus
Develop high-quality command-line tools that utilize the powerful shell capabilities and perform well using Go's in-built concurrency mechanisms
Build microservices for larger organizations using the Go Kit library
Implement a modern document database as well as high-throughput messaging queue technology to put together an architecture that is truly ready to scale
Write concurrent programs and gracefully manage the execution of them and communication by smartly using channels
Get a feel for app deployment using Docker and Google App Engine
In Detail
Go is the language of the Internet age, and the latest version of Go comes with major architectural changes. Implementation of the language, runtime, and libraries has changed significantly. The compiler and runtime are now written entirely in Go. The garbage collector is now concurrent and provides dramatically lower pause times by running in parallel with other Go routines when

possible. This book will show you how to leverage all the latest features and much more. This book shows you how to build powerful systems and drops you into real-world situations. You will learn to develop high-quality command-line tools that utilize the powerful shell capabilities and perform well using Go's in-built concurrency mechanisms. Scale, performance, and high availability lie at the heart of our projects, and the lessons learned throughout this book will arm you with everything you need to build world-class solutions. You will get a feel for app deployment using Docker and Google App Engine. Each project could form the basis of a start-up, which means they are directly applicable to modern software markets. Style and approach This book provides fun projects that involve building applications from scratch. These projects will teach you to build chat applications, a distributed system, and a recommendation system. 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.

Go, commonly referred to as golang, is a programming language initially developed at Google in 2007. This book helps you to get started with Go programming. It describes all the elements of the language and illustrates their use with code examples. The following is highlight topics in this book: * Development Environment * Go Programming Language * Arrays, Slices and Maps * Functions * Pointers * Structs and Methods * String Operations * File Operations * Error Handling and Logging * Building Own Go Package * Concurrency * Encoding * Hashing and Cryptography * Database Programming * Socket Programming

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.

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. 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.

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Discover How to Build Reliable, Scalable, High-Performance and Fault-Tolerant Programs With a Proven Approach to Learning Go Programming! Are you a newbie to programming and are looking for the perfect language to get started with? Are you a web developer, programmer, enterprise developer or even a systems admin looking to upgrade your programming skill stack with a future-proof programming language? If your answer is yes to any of these questions, then this book is for you. Go is a language developed by Google that is designed to simple, reliable and efficient, with concurrency and portability built in. In this comprehensive introduction to Go, Nathan Metzler makes it easy for programmers like you to get started building powerful software and applications with the Go language. Here's what you're going to discover in the pages of Go Programming for Beginners Everything you need to know about Go as a beginner to help you hit the ground running Step-by-step instructions to install Go on your preferred operating system A crash guide to the basics of the Go language, from statements and comments to keywords and tokens All you need to know about data types, variables, arrays and functions in Go language How to write your very first program in the Go programming language with detailed directions Programming examples in Go language to help you improve your understanding and sharpen your programming chops with the Go language ...and much, much more! Evenly-paced, fluff-free and direct, Go Programming for Beginners is a hands-on guide designed to help newbies like you get up to speed and create amazing, resilient and concurrent programs, building a solid foundation for your programming skills that will serve you well in the years ahead. Scroll to the top of the page and click the "Buy Now with 1-Click" button to get started on your journey to Go language mastery TODAY!

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.

Explore the fundamentals of systems programming starting from kernel API and filesystem to network programming and process communications Key Features Learn how to write Unix and Linux system code in Golang v1.12 Perform inter-process communication using pipes, message queues, shared memory, and semaphores Explore modern Go features such as goroutines and channels that facilitate systems programming Book Description System software and applications were largely created using low-level languages such as C or C++. Go is a modern language that combines simplicity, concurrency, and performance, making it a good alternative for building system applications for Linux and macOS. This Go book introduces Unix and systems programming to help you understand the components the OS has to offer, ranging from the kernel API to the filesystem, and familiarize yourself with Go and its specifications. You'll also learn how to optimize input and output operations with files and streams of data, which are useful tools in building pseudo terminal applications. You'll gain insights into how processes communicate with each other, and learn about processes and daemon control using signals, pipes, and exit codes. This book will also enable you to understand how to use network communication using

various protocols, including TCP and HTTP. As you advance, you'll focus on Go's best feature-concurrency helping you handle communication with channels and goroutines, other concurrency tools to synchronize shared resources, and the context package to write elegant applications. By the end of this book, you will have learned how to build concurrent system applications using Go. What you will learn: Explore concepts of system programming using Go and concurrency. Gain insights into Golang's internals, memory models and allocation. Familiarize yourself with the filesystem and IO streams in general. Handle and control processes and daemons' lifetime via signals and pipes. Communicate with other applications effectively using a network. Use various encoding formats to serialize complex data structures. Become well-versed in concurrency with channels, goroutines, and sync. Use concurrency patterns to build robust and performant system applications. Who this book is for: If you are a developer who wants to learn system programming with Go, this book is for you. Although no knowledge of Unix and Linux system programming is necessary, intermediate knowledge of Go will help you understand the concepts covered in the book.

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

A guide to Go describes how the programming language is structured and provides examples of code that demonstrate every stage of Go development, from creating a simple program to debugging and distributing code.

Your one-stop guide to the common patterns and practices, showing you how to apply these using the Go programming language About This Book This short, concise, and practical guide is packed with real-world examples of building microservices with Go It is easy to read and will benefit smaller teams who want to extend the functionality of their existing systems Using this practical approach will save your money in terms of maintaining a monolithic architecture and demonstrate capabilities in ease of use Who This Book Is For You should have a working knowledge of programming in Go, including writing and compiling basic applications. However, no knowledge of RESTful architecture, microservices, or web services is expected. If you are looking to apply techniques to your own projects, taking your first steps into microservice architecture, this book is for you. What You Will Learn Plan a microservice architecture and design a microservice Write a microservice with a RESTful API and a database Understand the common idioms and common patterns in microservices architecture Leverage tools and automation that helps microservices become horizontally scalable Get a grounding in containerization with Docker and Docker-Compose, which will greatly accelerate your development lifecycle Manage and secure Microservices at scale with monitoring, logging, service discovery, and automation Test microservices and integrate API tests in Go In Detail Microservice architecture is sweeping the world as the de facto pattern to build web-based applications. Golang is a language particularly well suited to building them. Its strong community, encouragement of idiomatic style, and statically-linked binary artifacts make integrating it with other technologies and managing microservices at scale consistent and intuitive. This book will teach you the common patterns and practices, showing you how to apply these using the Go programming language. It will teach you the fundamental concepts of architectural design and RESTful communication, and show you patterns that provide manageable code that is supportable in development and at scale in production. We will provide you with examples on how to put these concepts and patterns into practice with Go. Whether you are planning a new application or working in an existing monolith, this book will explain and illustrate with practical examples how teams of all sizes can start solving problems with microservices. It will help you understand Docker and Docker-Compose and how it can be used to isolate microservice dependencies and build environments. We finish off by showing you various techniques to monitor, test, and secure your microservices. By the end, you will know the benefits of system resilience of a microservice and the advantages of Go stack. Style and approach The step-by-step tutorial focuses on

building microservices. Each chapter expands upon the previous one, teaching you the main skills and techniques required to be a successful microservice practitioner.

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.

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.

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!

Summary Go Web Programming 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

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

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

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.

This is not your typical programming book! Jump right in with interesting, useful programs, some of which are drawn from classic computer science problems as a way of talking about the programming constructs in the language rather than explaining everything in a dry, theoretical manner that doesn't translate well to implementation. Rust programming has been the "most loved programming language" in the Stack Overflow Developer Survey every year since 2016! Learn why programmers are using Rust due to its performance and efficiency, without the errors and crashes that a programmer would find in common languages such as C and C++. Built around solving real problems, this book will help introduce you to computer science problems that can be built upon to create solutions for other problems. **LEARN BY DOING:** This book will focus on a practical approach to learning Rust. You will learn all of the language fundamentals through the use of programming examples that do interesting things! All of the programs covered will be based on a computer science problem or other interesting problems that can be used as a foundation for demonstrating language syntax, data types and structures, and other features or techniques for developing programs.

Learn programming in Go for fun. Go is one of the most popular programming languages. Go is an interesting language. It is much simpler than most other modern programming languages. It is easier to learn. It is easier to use. It is safer to use. It is more fun to use. If you are just starting with programming, then Go is the perfect language to learn programming with. If you are a seasoned developer, and looking to expand your horizon, then Go is the perfect language to pick up as your next programming language. **The Art of Go - Basics: Introduction to Programming in Go** is written for broad audience. It starts from the absolute basics and moves on to more advanced topics. Although it is an introductory book, you will gain sufficient knowledge, after reading this book, that you can venture into a journey of programming in Go on your own. **Who is this book for?** - Anyone who wants to know what programming is and how the code is written. - Anyone who has tried to learn programming and given up because it was too hard. - Anyone who has some experience in programming and who wants to learn the Go language. **The Art of Go - Basics** is organized into a series of small lessons. Each lesson starts with simple example programs. The book covers the following topics, among other things: - Basic constructs of the Go language such as expressions and statements. - Primitive types,

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slices, maps, and functions. - Go structs, interfaces, and methods. - Goroutines and channels.

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