



**Software Engineering**  
**An MVC Approach to Concepts, Structures, and Models**  
**Software Engineering from Scratch**  
**Concepts - Practices - Perspectives**  
**Empirical Research in Software Engineering**  
**Modern Software Engineering Concepts and Practices**  
**Fundamentals of Software Engineering**

Explore software engineering methodologies, techniques, and best practices in Go programming to build easy-to-maintain software that can effortlessly scale on demand Key FeaturesApply best practices to produce lean, testable, and maintainable Go code to avoid accumulating technical debtExplore Go's built-in support for concurrency and message passing to build high-performance applicationsScale your Go programs across machines and manage their life cycle using KubernetesBook 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 learnUnderstand different stages of the software development life cycle and the role of a software engineerCreate APIs using gRPC and leverage the middleware offered by the gRPC ecosystemDiscover various approaches to managing package dependencies for your projectsBuild an end-to-end project from scratch and explore different strategies for scaling itDevelop a graph processing system and extend it to run in a distributed mannerDeploy Go services on Kubernetes and monitor their health using PrometheusWho 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.

Software engineering has advanced rapidly in recent years in parallel with the complexity and scale of software systems. New requirements in software systems yield innovative approaches that are developed either through introducing new paradigms or extending the capabilities of well-established approaches. Modern Software Engineering Concepts and Practices: Advanced Approaches provides emerging theoretical approaches and their practices. This book includes case studies and real-world practices and presents a range of advanced approaches to reflect various perspectives in the discipline. The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient-lessons directly applicable to your organization. This book is divided into four sections: Introduction-Learn what site reliability engineering is and why it differs from conventional IT industry practices Principles-Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE) Practices-Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems Management-Explore Google's best practices for training, communication, and meetings that your organization can use Software systems now invade every area of daily living. Yet, we still struggle to build systems we can really rely on. If we want to work with software systems at any level, we need to get to grips with the way software evolves. This book will equip the reader with a sound understanding of maintenance and how it affects all levels of the software evolution process. How Google Runs Production Systems Concepts and Practice Concepts, Methodologies, Tools and Applications Hands-On Software Engineering with Golang Computer Simulations in Science and Engineering From Journeyman to Master The Pragmatic Programmer