Beginning Rust: From Novice To Professional

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

Despite using them every day, most software engineers know little about how programming languages are designed and implemented. For many, their only experience with that corner of computer science was a terrifying "compilers" class that they suffered through in undergrad and tried to blot from their memory as soon as they had scribbled their last NFA to DFA conversion on the final exam. That fearsome reputation belies a field that is rich with useful techniques and not so difficult as some of its practitioners might have you believe. A better understanding of how programming languages are built will make you a stronger software engineer and teach you concepts and data structures you'll use the rest of your coding days. You might even have fun. This book teaches you everything you need to know to implement a full-featured, efficient scripting language. You'll learn both high-level concepts around parsing and semantics and gritty details like bytecode representation and garbage collection. Your brain will light up with new ideas, and your hands will get dirty and calloused. Starting from main(), you will build a language that features rich syntax, dynamic typing, garbage collection, lexical scope, first-class functions, closures, classes, and inheritance. All packed into a few thousand lines of clean, fast code that you thoroughly understand because you wrote each one yourself.

Learn to program with Rust 2021 Edition, in an easy, step-by-step manner on Unix, the Linux shell, macOS, and the Windows command line. As you read this book, you’ll build on the knowledge you gained in previous chapters and see what Rust has to offer. Beginning Rust starts with the basics of Rust, including how to name objects, control execution flow, and handle primitive types. You’ll see how to do arithmetic, allocate memory, use iterators, and handle input/output. Once you have mastered these core skills, you’ll work on handling errors and using the object-oriented features of Rust to build robust Rust applications in no time. Only a basic knowledge of programming in C or C++ and familiarity with a command console are required. After reading this book, you’ll be ready to build simple Rust applications. What You Will Learn Get started programming with Rust Understand heterogeneous data structures and data sequences Define functions, generic functions, structs, and more Work with closures, changeable strings, ranges and slices Use traits and learn about lifetimes Who This Book Is For Those who are new to Rust and who have at least some prior experience with programming in general: some C/C++ is recommended particularly.

Mastering Rust, Second Edition covers a comprehensive list of topics that will help you gain deeper insights into the language. It will allow you how to create high performing applications effortlessly.

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

Creating Intelligent Applications in Rust

The easiest way to learn Rust programming

Novice to Master

Beginning Rust

Build exciting projects on domains such as web apps, WebAssembly, games, and parsing

Summary Getting MEAN, Second Edition teaches you how to develop full-stack web applications using the MEAN stack. This edition was completely revised and updated to cover MongoDB 4, Express 4, Angular 7, Node 11, and the latest mainstream release of JavaScript ES2015. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Juggling languages mid-application can radically slow down a full-stack web project. The MEAN stack—MongoDB, Express, Angular, and Node—uses JavaScript end to end, maximizing developer productivity and minimizing context switching. And you'll love the results! MEAN apps are fast, powerful, and beautiful. About the Book Getting MEAN, Second Edition teaches you how to develop full-stack web applications using the MEAN stack. Practical from the very beginning, the book helps you create a static site in Express and Node. Expanding on that solid foundation, you'll integrate a MongoDB database, build an API, and add an authentication system. Along the way, you'll get countless pro tips for building dynamic and responsive data-driven web applications! What's inside MongoDB 4, Express 4, Angular 7, and Node.js 11 MEAN stack architecture Mobile-ready web apps Best practices for efficiency and reusability About the Reader Readers should be comfortable with standard web application designs and ES2015-style JavaScript. About the Author Simon Holmes and Clive Harber are full-stack developers with decades of experience in JavaScript and other leading-edge web technologies. Table of Contents PART 1 - SETTING THE BASELINE Introducing full-stack development Designing a MEAN stack architecture PART 2 - BUILDING A NODE WEB APPLICATION Creating and setting up a MEAN project Building a static site with Node and Express Building a data model with MongoDB and Mongoose Writing a REST API: Exposing the MongoDB database to the application Consuming a REST API: Using an API from inside Express PART 3 - ADDING A DYNAMIC FRONT END WITH ANGULAR Creating an Angular application with TypeScript Building a single-page application with Angular: Foundations Building a single-page application with Angular: The next level PART 4 - MANAGING AUTHENTICATION AND USER SESSIONS Authenticating users, managing sessions, and securing APIs Using an authentication API in Angular applications

Get familiar with writing programs in the trending new systems programming language that brings together the powerful performance of low-level languages with the advanced features like thread safety in multi-threaded code Key Features Learn the semantics of Rust, which can be significantly different from other programming languages Understand clearly how to work with the Rust compiler which strictly enforces rules that may not be obvious Examples and insights beyond the Rust documentation Book Description Rust is an emerging programming language applicable to areas such as embedded programming, network programming, system programming, and web development. This book will take you from the basics of Rust to a point where your code compiles and does what you intend it to do! This book starts with an introduction to Rust and how to get set for programming, including the rustup and cargo tools for

managing a Rust installation and development workflow. Then you'll learn about the fundamentals of structuring a Rust program, such as functions, mutability, data structures, implementing behavior for types, and many more. You will also learn about concepts that Rust handles differently from most other languages. After understanding the Basics of Rust programming, you will learn about the core ideas, such as variable ownership, scope, lifetime, and borrowing. After these key ideas, you will explore making decisions in Rust based on data types by learning about match and if let expressions. After that, you'll work with different data types in Rust, and learn about memory management and smart pointers. What you will learn Install Rust and write your first program with it Understand ownership in Rust Handle different data types Make decisions by pattern matching Use smart pointers Use generic types and type specialization Write code that works with many data types Tap into the standard library Who this book is for This book is for people who are new to Rust, either as their first programming language or coming to it from somewhere else. Familiarity with computer programming in any other language will be helpful in getting the best out of this book.

Learn how to program using the updated C++17 language. You'll start with the basics and progress through step-by-step examples to become a working C++ programmer. All you need are Beginning C++17 and any recent C++ compiler and you'll soon be writing real C++ programs. There is no assumption of prior programming knowledge. All language concepts that are explained in the book are illustrated with working program examples, and all chapters include exercises for you to test and practice your knowledge. Code downloads are provided for all examples from the text and solutions to the exercises. This latest edition has been fully updated to the latest version of the language, C++17, and to all conventions and best practices of so-called modern C++. Beginning C++17 also introduces the elements of the C++ Standard Library that provide essential support for the C++17 language. What You'll Learn Define variables and make decisions Work with arrays and loops, pointers and references, strings, and more Write your own functions, types, and operators Discover the essentials of object-oriented programming Use overloading, inheritance, virtual functions and polymorphism Write generic function templates and class templates Get up to date with modern C++ features: auto type declarations, move semantics, lambda expressions, and more Examine the new additions to C++17 Who This Book Is For Programmers new to C++ and those who may be looking for a refresh primer on the C++17 programming language in general.

A comprehensive guide in developing and deploying high performance microservices with Rust Key Features Start your microservices journey and get a broader perspective on microservices development using RUST 2018, Build, deploy, and test microservices using AWS Explore advanced techniques for developing microservices such as actor model, Requests Routing, and threads Book Description Microservice architecture is sweeping the world as the de facto pattern for building web-based applications. Rust is a language particularly well-suited for building microservices. It is a new system programming language that offers a practical and safe alternative to C. This book describes web development using the Rust programming language and will get you up and running with modern web frameworks and crates with examples of RESTful microservices creation. You will deep dive into Reactive programming, and asynchronous programming, and split your web application into a set of concurrent actors. The book provides several HTTP-handling examples with manageable memory allocations. You will walk through stateless high-performance microservices, which are ideally suitable for computation or caching tasks, and look at stateful microservices, which are filled with persistent data and database interactions. As we move along, you will learn how to use Rust macros to describe business or protocol entities of our application and compile them into native structs, which will be performed at full speed with the help of the server's CPU. Finally, you will be taken through examples of how to test and debug microservices and pack them into a tiny monolithic binary or put them into a container and deploy them to modern cloud platforms such as AWS. What you will learn Get acquainted with leveraging Rust web programming Get to grips with various Rust crates, such as hyper, Tokio, and Actix Explore RESTful microservices with Rust Understand how to pack Rust code to a container using Docker Familiarize yourself with Reactive microservices Deploy your microservices to modern cloud platforms such as AWS Who this book is for This book is for developers who have basic knowledge of RUST, and want to learn how to build, test, scale, and manage RUST microservices. No prior experience of writing microservices in RUST is assumed.

Summary Go from zero to production readiness with Docker in 22 bite-sized lessons! Learn Docker in a Month of Lunches is an accessible task-focused guide to Docker on Linux, Windows, or Mac systems. In it, you'll learn practical Docker skills to help you tackle the challenges of modern IT, from cloud migration and microservices to handling legacy systems. There's no excessive theory or niche-use cases—just a quick-and-easy guide to the essentials of Docker you'll use every day. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology The idea behind Docker is simple: package applications in lightweight virtual containers that can be easily installed. The results of this simple idea are huge! Docker makes it possible to manage applications without creating custom infrastructures. Free, open source, and battle-tested, Docker has quickly become must-know technology for developers and administrators. About the book Learn Docker in a Month of Lunches introduces Docker concepts through a series of brief hands-on lessons. Following a learning path perfected by author Elton Stoneman, you'll run containers by chapter 2 and package applications by chapter 3. Each lesson teaches a practical skill you can practice on Windows, macOS, and Linux systems. By the end of the month you'll know how to containerize and run any kind of application with Docker. What's inside Package applications to run in containers Put containers into production Build optimized Docker images Run containerized apps at scale About the reader For IT professionals. No previous Docker experience required. About the author Elton Stoneman is a consultant, a former architect at Docker, a Microsoft MVP, and a Pluralsight author. Table of Contents PART 1 - UNDERSTANDING DOCKER CONTAINERS AND IMAGES 1. Before you begin 2. Understanding Docker and running Hello World 3. Building your own Docker images 4. Packaging applications from source code into Docker Images 5. Sharing images with Docker Hub and other registries 6. Using Docker volumes for persistent storage PART 2 - RUNNING DISTRIBUTED APPLICATIONS IN CONTAINERS 7. Running multi-container apps with Docker Compose 8. Supporting reliability with health checks and dependency checks 9. Adding observability with containerized monitoring 10. Running multiple environments with Docker Compose 11. Building and testing applications with Docker and Docker Compose PART 3 - RUNNING AT SCALE WITH A CONTAINER ORCHESTRATOR 12. Understanding orchestration: Docker Swarm and Kubernetes 13. Deploying distributed applications as stacks in Docker Swarm 14. Automating releases with upgrades and rollbacks 15. Configuring Docker for secure remote access and CI/CD 16. Building Docker images that run anywhere: Linux, Windows, Intel, and Arm PART 4 - GETTING YOUR CONTAINERS READY FOR PRODUCTION 17. Optimizing your Docker images for size, speed, and security 18. Application configuration management in containers 19. Writing and managing application logs with Docker 20. Controlling HTTP traffic to containers with a reverse proxy 21. Asynchronous communication with a message queue 22. Never the end

Learning Perl

Getting MEAN with Mongo, Express, Angular, and Node

Site Reliability Engineering

Programming Rust

Creative Projects for Rust Programmers

Pandas in Action

Rust in Action introduces the Rust programming language by exploring numerous systems programming concepts and techniques.You'll be learning Rust by delving into how computers work under the hood. You'll

find yourself playing with persistent storage, memory, networking and even tinkering with CPU instructions. The book takes you through using Rust to extend other applications and teaches you tricks to write blindingly fast code. You'll also discover parallel and concurrent programming. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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 it's performance and efficency, 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 learing 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 othre 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.

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.

An environmental journalist traces the historical war against rust, revealing how rust-related damage costs more than all other natural disasters combined and how it is combated by industrial workers, the government, universities and everyday people.

If you're an experienced programmer who has not worked with Clojure before, this guide is the perfect thorough but gentle introduction for you. Author Carin Meier not only provides a practical overview of this JVM language and its functional programming concepts, but also includes a complete hands-on training course to help you learn Clojure in a structured way. The first half of the book takes you through Clojure's unique design and lets you try your hand at two Clojure projects, including a web app. The holistic course in second half provides you with critical tools and resources, including ways to plug into the Clojure community. Understand the basic structure of a Clojure expression Learn how to shape and control code in a functional way Discover how Clojure handles real-world state and concurrency Take advantage of Java classes and learn how Clojure handles polymorphism Manage and use libraries in a Clojure project Use the core.async library for asynchronous and concurrent communication Explore the power of macros in Clojure programming Learn how to think in Clojure by following the book's seven-week training course

Practical Machine Learning with Rust

A Thorough Introduction to the Go Programming Language

Rust Web Programming

Learn programming techniques to build effective, maintainable, and readable code in Rust 2018

Fast, Safe Systems Development

Living Clojure

Summary Grokking Algorithms is a fully illustrated, friendly guide that teaches you how to apply common algorithms to the practical problems you face every day as a programmer. You'll start with sorting and searching and, as you build up your skills in thinking algorithmically, you'll tackle more complex concerns such as data compression and artificial intelligence. Each carefully presented example includes helpful diagrams and fully annotated code samples in Python. Learning about algorithms doesn't have to be boring! Get a sneak peek at the fun, illustrated, and friendly examples you'll find in Grokking Algorithms on Manning Publications' YouTube channel. Continue your journey into the world of algorithms with Algorithms in Motion, a practical, hands-on video course available exclusively at Manning.com (www.manning.com/livevideo/algorithms-in-motion). Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology An algorithm is nothing more than a step-by-step procedure for solving a problem. The algorithms you'll use most often as a programmer have already been discovered, tested, and proven. If you want to understand them but refuse to slog through dense multipage proofs, this is the book for you. This fully illustrated and engaging guide makes it easy to learn how to use the most important algorithms effectively in your own programs. About the Book Grokking Algorithms is a friendly take on this core computer science topic. In it, you'll learn how to apply common algorithms to the practical programming problems you face every day. You'll start with tasks like sorting and searching. As you build up your skills, you'll tackle more complex problems like data compression and artificial intelligence. Each carefully presented example includes helpful diagrams and fully annotated code samples in Python. By the end of this book, you will have mastered widely applicable algorithms as well as how and when to use them. What's Inside Covers search, sort, and graph algorithms Over 400 pictures with detailed walkthroughs Performance trade-offs between algorithms Python-based code samples About the Reader This easy-to-read, picture-heavy introduction is suitable for self-taught programmers, engineers, or anyone who wants to brush up on algorithms. About the Author Aditya Bhargava is a Software Engineer with a dual background in Computer Science and Fine Arts. He blogs on programming at adit.io. Table of Contents Introduction to algorithms Selection sort Recursion Quicksort Hash tables Breadth-first search Dijkstra's algorithm Greedy algorithms Dynamic programming K-nearest neighbors

Web frameworks are playing a major role in the creation of today's most compelling web applications, because they automate many of the tedious tasks, allowing developers to instead focus on providing users with creative and powerful features. Java developers have been particularly fortunate in this area, having been able to take advantage of Grails, an open source framework that supercharges productivity when building Java–driven web sites. Grails is based on Groovy,

which is a very popular and growing dynamic scripting language for Java developers and was inspired by Python, Ruby, and Smalltalk. Beginning Groovy and Grails is the first introductory book on the Groovy language and its primary web framework, Grails. This book gets you started with Groovy and Grails and culminates in the example and possible application of some real–world projects. You follow along with the development of each project, implementing and running each application while learning new features along the way.

Get started programming Rust applications for the Internet of Things (IoT). This book is a programming skills migration book that teaches you the Rust programming techniques most useful for IoT applications. You'll step through from server to board development in creating a set of IoT applications. In Rust for the IoT, you'll learn how to build a modern server side application using Rust on the backend. Then you'll use docker and Kubernetes to deploy these to a managed cloud. Finally you will use a Raspberry Pi with a SenseHat and Camera to capture the world around you and send that information to the cloud. While you will be able to follow along without any cloud or hardware, to make the most of it we recommend a few cloud pieces and hardware that is designed to integrate with the software in this book. After reading and using this book, you'll see how to apply Rust to the Internet of Things. What You Will Learn Create a modern Rust backend complete with handling eventual consistency and interacting via a GraphQL interface Use the Raspberry PI to serve as a cheap IoT device that one can easily deploy around the house Capture temperature, video, and use the interactive joystick to interact with the software you've created Use OpenCV to perform facial detection from the PI's camera and save that information to the cloud. Create deployable helm charts for the cloud, and for the device create complete ISOs that allow you to easily deploy the Pi's OS + custom software Who This Book Is For You will need to have a basic understanding of cloud application development at a minimum and the basics of Rust coding. This book is for those interested in or working with the IoT and the Raspberry Pi who want to learn how Rust can work for them.

Beginning RustFrom Novice to ProfessionalApress

Harness the Raw Power of the Rust Programming Language and Build High-Performance, Scalable and Fault-Tolerant Applications with the Ultimate Beginners Guide to Rust! Are you interested in learning how to program powerful applications that serve millions of users concurrently without breaking, but have no idea how to begin? Are you currently an object-oriented programmer looking to pivot to functional programming languages? If your answer is yes to any of the questions above, then learning the Rust programming language is one of the best things you can do for your software career! In this comprehensive introduction to the Rust programming language for beginners, Nathan Metzler gives you a complete look under the hood of Rust and shows you how to take advantage of Rust's powerful features from installing Rust on your computer and running your first code to creating scalable applications. Among the pages of Rust Programming for Beginners, you're going to discover: All you need to know about the Rust programming language as a beginner to help you get started on the right foot Step-by-step instructions to install Rust on Windows, macOS, Linux, and FreeBSD with images How to write, compile and execute your first piece of working code with Rust programming language How to build and run projects in rust as well as identify and troubleshoot compile-time and runtime errors A crash course to the basics of Rust language syntax and data types from statements and comments to integers and boolean Programming examples in Rust designed to help you enhance your coding knowledge and sharpen your programming skill with the Rust language ...and tons more! Properly-paced, filler-free, and specifically designed for beginners to Rust, this book is a complete guide to help newbies get up to speed with Rust and is brimming with practical advice to leverage the performance of Rust, as well as code examples to test your knowledge. Ready to master one of the world's most powerful and versatile programming languages? Scroll to the top of the page and click the "Buy Now with 1-Click" button to get started TODAY!

Rust Programming Language Tutorial

Beginning Rust Programming

How to Design Programs, second edition

Build, test, and deploy scalable and reactive microservices with Rust 2018

The Rust Programming Language (Covers Rust 2018)

Programming Clojure

Rust is an exciting new programming language combining the power of C with memory safety, fearless concurrency, and productivity boosters - and what better way to learn than by making games. Each chapter in this book presents hands-on, practical projects ranging from "Hello, World" to building a full dungeon crawler game. With this book, you'll learn game development skills applicable to other engines, including Unity and Unreal. Rust is an exciting programming language combining the power of C with memory safety, fearless concurrency, and productivity boosters. With Rust, you have a shiny new playground where your game ideas can flourish. Each chapter in this book presents hands-on, practical projects that take you on a journey from "Hello, World" to building a full dungeon crawler game. Start by setting up Rust and getting comfortable with your development environment. Learn the language basics with practical examples as you make your own version of Flappy Bird. Discover what it takes to randomly generate dungeons and populate them with monsters as you build a complete dungeon crawl game. Run game systems concurrently for high-performance and fast game-play, while retaining the ability to debug your program. Unleash your creativity with magical items, tougher monsters, and intricate dungeon design. Add layered graphics and polish your game with style. What You Need: A computer running Windows 10, Linux, or Mac OS X. A text editor, such as Visual Studio Code. A video card and drivers capable of running OpenGL 3.2.

Learn to program with Rust in an easy, step-by-step manner on Unix, Linux shell, macOS and the Windows command line. As you read this book, you ' ll build on the knowledge you gained in previous chapters and see what Rust has to offer. Beginning Rust starts with the basics of Rust, including how to name objects, control execution flow, and handle primitive types. You ' ll see how to do arithmetic, allocate memory, use iterators, and handle input/output. Once you have mastered these core skills, you ' ll work on handling errors and using the object-oriented features of Rust to build robust Rust applications in no time. Only a basic knowledge of programming is required, preferably in C or C++. To understand this book, it's enough to know what integers and floating-point numbers are, and to distinguish identifiers from string literals. After reading this book, you'll be ready to build Rust applications. What You'll Learn Get started programming with Rust Understand heterogeneous data structures and data sequences Define functions, generic functions, structs, and more Work with closures, changeable strings, ranges and slices Use traits and learn about lifetimes Who This Book Is For Those who are new to Rust and who have at least some prior experience with programming in general: some C/C++ is recommended particularly.

Build projects on exciting topics like game development, virtual reality, web assembly, emulators, GUI, and Linux/kernel development. By the end of the book, you will know how to choose the right framework or library for your needs.

Shows how to write, debug, and run a Perl program, describes CGI scripting and data manipulation, and describes scalar values, basic operators, and associative arrays.

A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason, it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.

Hands-On Data Structures and Algorithms with Rust

An Ongoing Lesson in the Extent of My Own Stupidity
How Google Runs Production Systems
Rust Quick Start Guide
Real-World Cryptography
Learn about memory safety, type system, concurrency, and the new features of Rust 2018 edition, 2nd Edition

Hands-On Data Structures and Algorithms with Rust will help you in upgrading your earlier knowledge of Rust so that you shift to a confident developer by implementing the algorithms in a practical environment. This would be an essential reference guide for end-user/reader to understand the fundamental techniques of Rust. This guide will cover ...

Summary Get Programming with JavaScript is a hands-on introduction to programming for readers who have never programmed. You'll be writing your own web apps, games, and programs in no time! Foreword by Remy Sharp. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book Are you ready to start writing your own web apps, games, and programs? You’re in the right place! Get Programming with JavaScript is a hands-on introduction to programming for readers who have never written a line of code. Since you’re just getting started, this friendly book offers you lots of examples backed by careful explanations. As you go along, you’ll find exercises to check your understanding and plenty of opportunities to practice your new skills. You don’t need anything special to follow the examples—just the text editor and web browser already installed on your computer. We even give you links to working online code so you can see how everything should look live on your screen. What’s Inside All the basics—objects, functions, responding to users, and more Think like a coder and design your own programs Create a text-based adventure game Enhance web pages with JavaScript Run your programs in a web browser Four bonus chapters available online About the Reader No experience required! All you need is a web browser and an internet connection. About the Author John Larsen is a mathematics and computing teacher with an interest in educational research. He has an MA in mathematics and an MSc in information technology. He started programming in 1982, writing simple programs for teaching mathematics in 1993, building websites in 2001, and developing data-driven web-based applications for education in 2006. Table of Contents PART 1 CORE CONCEPTS ON THE CONSOLE Programming, JavaScript, and JS Bin Variables: storing data in your program Objects: grouping your data Functions: code on demand Arguments: passing data to functions Return values: getting data from functions Object arguments: functions working with objects Arrays: putting data into lists Constructors: building objects with functions Bracket notation: flexible property names PART 2 ORGANIZING YOUR PROGRAMS Scope: hiding information Conditions: choosing code to run Modules: breaking a program into pieces Models: working with data Views: displaying data Controllers: linking models and views PART 3 JAVASCRIPT IN THE BROWSER HTML: building web pages Controls: getting user input Templates: filling placeholders with data XHR: loading data Conclusion: get programming with JavaScript BONUS ONLINE CHAPTERS Node: running JavaScript outside the browser Express: building an API Polling: repeating requests with XHR Socket.IO: real-time messaging

Rust is a new and fast programming language that provides memory safety without a garbage collector. With its low memory footprint, it allows web developers to build high-performance and secure web apps with relative ease. This book will help web developers to adopt Rust for web app development, while addressing safety and high-performance issues.

This is an extensive and beginner-friendly Rust tutorial prepared by our system programming team here at Apriorit. Whether you're a Rust aficionado or only starting your Rust journey, this e-book undoubtedly will prove useful to you. Key Highlights Discover the main features of the Rust language Learn to develop safer and faster software using Rust Learn to establish efficient C bindings Get detailed explanations of differences between Rust and C++ Book Description Rust is a c-like systems programming language that provides many advantages over its predecessors. This is why this low-level language has already become so popular in the development community. This book covers the main features of Rust, like zero-cost abstractions, move semantics, trait-based generics, pattern matching, type inference, and minimal runtime. It also explains how the Rust programming language can ensure memory safety and avoid data races in threads. In addition, Rust provides a great opportunity to use wide range of libraries and bind with other languages. The author added a detailed chart comparing feature set of Rust to C++, so you can better understand all the advantages and disadvantages of Rust. This tutorial will be useful for developers who only starts learning Rust, as well as for those who want to improve their knowledge on Rust features. What you will learn Discover Rust features that make programming faster and secure Guarantee memory safety using Rust Benefit from zero-cost abstraction mechanisms Avoid data races and a garbage collector Get rid of use-after-free, double-free bugs, dangling pointers Reduce code duplication Use existing libraries written in C and other languages Understand the main difference between Rust and C++ About the Author Alexey Lozovsky is a Software Designer at Apriorit.Inc. Apriorit Inc. is a software development service provider headquartered in the Dover, DE, US, with several development centers in Eastern Europe. With over 350 professionals, it brings high-quality services on software consulting, research, and development to software vendors and IT companies worldwide. Apriorit’s main specialties are cybersecurity and data management projects, where system programming, driver and kernel level development, research and reversing matter. The company has an independent web platform development department focusing on building cloud platforms for business. Table of Contents Introduction Summary of Features Rust Language Features Zero-Cost Abstractions Move Semantics Guaranteed Memory Safety Ownership Borrowing Mutability and Aliasing Option Types instead of Null Pointers No Uninitialized Variables Threads without Data Races Passing Messages with Channels Safe State Sharing with Locks Trait-Based Generics Traits Define Type Interfaces Traits Implement Polymorphism Traits May be Implemented Automatically Pattern Matching Type Inference Minimal Runtime Efficient C Bindings Calling C from Rust The Libc Crate and Unsafe Blocks Beyond Primitive Types Calling Rust from C Rust vs. C++ Comparison

Explore machine learning in Rust and learn about the intricacies of creating machine learning

applications. This book begins by covering the important concepts of machine learning such as supervised, unsupervised, and reinforcement learning, and the basics of Rust. Further, you'll dive into the more specific fields of machine learning, such as computer vision and natural language processing, and look at the Rust libraries that help create applications for those domains. We will also look at how to deploy these applications either on site or over the cloud. After reading Practical Machine Learning with Rust, you will have a solid understanding of creating high computation libraries using Rust. Armed with the knowledge of this amazing language, you will be able to create applications that are more performant, memory safe, and less resource heavy. What You Will Learn Write machine learning algorithms in Rust Use Rust libraries for different tasks in machine learning Create concise Rust packages for your machine learning applications Implement NLP and computer vision in Rust Deploy your code in the cloud and on bare metal servers Who This Book Is For Machine learning engineers and software engineers interested in building machine learning applications in Rust.

Grokking Algorithms

Hands-On Microservices with Rust

Building Internet of Things Apps with Rust and Raspberry Pi

Beginning Ruby

Learn Docker in a Month of Lunches

Beginning C++17

Program in assembly starting with simple and basic programs, all the way up to AVX programming. By the end of this book, you will be able to write and read assembly code, mix assembly with higher level languages, know what AVX is, and a lot more than that. The code used in Beginning x64 Assembly Programming is kept as simple as possible, which means: no graphical user interfaces or whistles and bells or error checking. Adding all these nice features would distract your attention from the purpose: learning assembly language. The theory is limited to a strict minimum: a little bit on binary numbers, a short presentation of logical operators, and some limited linear algebra. And we stay far away from doing floating point conversions. The assembly code is presented in complete programs, so that you can test them on your computer, play with them, change them, break them. This book will also show you what tools can be used, how to use them, and the potential problems in those tools. It is not the intention to give you a comprehensive course on all of the assembly instructions, which is impossible in one book: look at the size of the Intel Manuals. Instead, the author will give you a taste of the main items, so that you will have an idea about what is going on. If you work through this book, you will acquire the knowledge to investigate certain domains more in detail on your own. The majority of the book is dedicated to assembly on Linux, because it is the easiest platform to learn assembly language. At the end the author provides a number of chapters to get you on your way with assembly on Windows. You will see that once you have Linux assembly under your belt, it is much easier to take on Windows assembly. This book should not be the first book you read on programming, if you have never programmed before, put this book aside for a while and learn some basics of programming with a higher-level language such as C. What You Will Learn Discover how a CPU and memory works Appreciate how a computer and operating system work together See how high-level language compilers generate machine language, and use that knowledge to write more efficient code Be better equipped to analyze bugs in your programs Get your program working, which is the fun part Investigate malware and take the necessary actions and precautions Who This Book Is For Programmers in high level languages. It is also for systems engineers and security engineers working for malware investigators. Required knowledge: Linux, Windows, virtualization, and higher level programming languages (preferably C or C++).

Based on the bestselling first edition, Beginning Ruby: From Novice to Professional, Second Edition is the leading guide for every type of reader who wants to learn Ruby from the ground up. The new edition of this book provides the same excellent introduction to Ruby as the first edition plus updates for the newest version of Ruby, including the addition of the Sinatra and Ramaze web application frameworks and a chapter on GUI development so developers can take advantage of these new trends. Beginning Ruby starts by explaining the principles behind object-oriented programming and within a few chapters builds toward creating a full Ruby application. By the end of the book, in addition to in-depth knowledge of Ruby, you'll also have basic understanding of many ancillary technologies such as SQL, XML, web frameworks, and networking. Introduces readers to the Ruby programming language Takes readers from basic programming skills to web development with topics like Ruby-based frameworks and GUI programming Covers many ancillary technologies in order to provide a broader picture (e.g., databases, XML, network daemons)

Pandas has rapidly become one of Python's most popular data analysis libraries. With pandas you can efficiently sort, analyze, filter and munge almost any type of data. Pandas in Action shows you how to master this versatile tool and take the next steps in your data science career. Pandas has rapidly become one of Python's most popular data analysis libraries. With pandas you can efficiently sort, analyze, filter and munge almost any type of data. Pandas in Action shows you how to master this versatile tool and take the next steps in your data science career. Pandas in Action makes it easy to dive into Python-based data analysis. You'll learn to use pandas to automate repetitive spreadsheet functionality and derive insight from data by sorting columns, filtering data subsets, and creating multi-leveled indices. Each chapter is a self-contained tutorial, letting you dip in when you need to troubleshoot tricky problems. Best of all, you won't be learning from sterile or randomly created data. You'll start with a variety of datasets that are big, small, incomplete, broken, and messy and learn how to clean and format them for proper analysis. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Drowning in unnecessary complexity, unmanaged state, and tangles of spaghetti code? In the best tradition of Lisp, Clojure gets out of your way so you can focus on expressing simple solutions to hard problems. Clojure cuts through complexity by providing a set of composable tools--immutable data, functions, macros, and the interactive REPL. Written by members of the Clojure core team, this book is the essential, definitive guide to Clojure. This new edition includes information on all the newest features of Clojure, such as transducers and specs. Clojure joins the flexibility and agility of Lisp with the reach, stability, and performance of Java. Combine Clojure's tools for maximum effectiveness as you work with immutable data, functional programming, and safe concurrency to write programs that solve real-world problems. Start by reading and understanding Clojure syntax and see how

Clojure is evaluated. From there, find out about the sequence abstraction, which combines immutable collections with functional programming to create truly reusable data transformation code. Clojure is a functional language; learn how to write programs in a functional style, and when and how to use recursion to your advantage. Discover Clojure's unique approach to state and identity, techniques for polymorphism and open systems using multimethods and protocols, and how to leverage Clojure's metaprogramming capabilities via macros. Finally, put all the pieces together in a real program. New to this edition is coverage of Clojure's spec library, one of the most interesting new features of Clojure for describing both data and functions. You can use Clojure spec to validate data, destructure data, explain invalid data, and generate large numbers of tests to verify the correctness of your code. With this book, you'll learn how to think in Clojure, and how to take advantage of its combined strengths to build powerful programs quickly. What You Need: Java 6 or higher Clojure 1.9

An all-practical guide to the cryptography behind common tools and protocols that will help you make excellent security choices for your systems and applications. In Real-World Cryptography, you will find: Best practices for using cryptography Diagrams and explanations of cryptographic algorithms Implementing digital signatures and zero-knowledge proofs Specialized hardware for attacks and highly adversarial environments Identifying and fixing bad practices Choosing the right cryptographic tool for any problem Real-World Cryptography reveals the cryptographic techniques that drive the security of web APIs, registering and logging in users, and even the blockchain. You'll learn how these techniques power modern security, and how to apply them to your own projects. Alongside modern methods, the book also anticipates the future of cryptography, diving into emerging and cutting-edge advances such as cryptocurrencies, and post-quantum cryptography. All techniques are fully illustrated with diagrams and examples so you can easily see how to put them into practice. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Cryptography is the essential foundation of IT security. To stay ahead of the bad actors attacking your systems, you need to understand the tools, frameworks, and protocols that protect your networks and applications. This book introduces authentication, encryption, signatures, secret-keeping, and other cryptography concepts in plain language and beautiful illustrations. About the book Real-World Cryptography teaches practical techniques for day-to-day work as a developer, sysadmin, or security practitioner. There's no complex math or jargon: Modern cryptography methods are explored through clever graphics and real-world use cases. You'll learn building blocks like hash functions and signatures; cryptographic protocols like HTTPS and secure messaging; and cutting-edge advances like post-quantum cryptography and cryptocurrencies. This book is a joy to read—and it might just save your bacon the next time you're targeted by an adversary after your data. What's inside Implementing digital signatures and zero-knowledge proofs Specialized hardware for attacks and highly adversarial environments Identifying and fixing bad practices Choosing the right cryptographic tool for any problem About the reader For cryptography beginners with no previous experience in the field. About the author David Wong is a cryptography engineer. He is an active contributor to internet standards including Transport Layer Security. Table of Contents PART 1 PRIMITIVES: THE INGREDIENTS OF CRYPTOGRAPHY 1 Introduction 2 Hash functions 3 Message authentication codes 4 Authenticated encryption 5 Key exchanges 6 Asymmetric encryption and hybrid encryption 7 Signatures and zero-knowledge proofs 8 Randomness and secrets PART 2 PROTOCOLS: THE RECIPES OF CRYPTOGRAPHY 9 Secure transport 10 End-to-end encryption 11 User authentication 12 Crypto as in cryptocurrency? 13 Hardware cryptography 14 Post-quantum cryptography 15 Is this it? Next-generation cryptography 16 When and where cryptography fails

Data Pipelines with Apache Airflow

Hands-on Rust

Rust for the IoT

Professional C++

The Well-Grounded Rubyist

An Introduction to Learning Rust Programming with Tutorials and Hands-On Examples

Geared to experienced C++ developers who may not be familiar with the more advanced features of the language, and therefore are not using it to its full capabilities Teaches programmers how to think in C++-that is, how to design effective solutions that maximize the power of the language The authors drill down into this notoriously complex language, explaining poorly understood elements of the C++ feature set as well as common pitfalls to avoid Contains several in-depth case studies with working code that's been tested on Windows, Linux, and Solaris platforms

Everybody loves Novice to Master! As you'll see in the glowing endorsements and reviews included below, this modern spiritual classic has been embraced by readers of all types. In his singularly humorous and biitingly direct way, Zen abbot Soko Morinaga tells the story of his rigorous training at a Japanese Zen temple, his spiritual growth and his interactions with his students and others. Morinaga's voice is uniquely tuned to the truth of the condition of the human mind and spirit and his reflections and interpretations are unvarnished and succinct. His great gift is the ability to lift the spirit of the reader all the while exposing the humility and weakness in the lives of people, none more so than his own. Read on to see what everyone from Publishers Weekly to well-known Buddhist figures and even New York Times bestselling author Anthony Swofford have to say about this one of a kind book!

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

strings and text, input and output, macros, unsafe code, and foreign function interfaces This revised, updated edition covers the Rust 2021 Edition.

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.

Summary The Well-Grounded Rubyist, Second Edition addresses both newcomers to Ruby as well as Ruby programmers who want to deepen their understanding of the language. This beautifully written and totally revised second edition includes coverage of features that are new in Ruby 2.1, as well as expanded and updated coverage of aspects of the language that have changed. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology This is a good time for Ruby! It's powerful like Java or C++, and has dynamic features that let your code react gracefully to changes at runtime. And it's elegant, so creating applications, development tools, and administrative scripts is easier and more straightforward. With the long-awaited Ruby 2, an active development community, and countless libraries and productivity tools, Ruby has come into its own. About the Book The Well-Grounded Rubyist, Second Edition is a beautifully written tutorial that begins with your first Ruby program and goes on to explore sophisticated topics like callable objects, reflection, and threading. The book concentrates on the language, preparing you to use Ruby in any way you choose. This second edition includes coverage of new Ruby features such as keyword arguments, lazy enumerators, and Module#prepend, along with updated information on new and changed core classes and methods. What's Inside Clear explanations of Ruby concepts Numerous simple examples Updated for Ruby 2.1 Prepares you to use Ruby anywhere for any purpose About the Author David A. Black is an internationally known Ruby developer, author, trainer, speaker, event organizer, and founder of Ruby Central, as well as a Lead Consultant at Cyrus Innovation. Table of Contents PART 1 RUBY FOUNDATIONS Bootstrapping your Ruby literacy Objects, methods, and local variables Organizing objects with classes Modules and program organization The default object (self), scope, and visibility Control-flow techniques PART 2 BUILT-IN CLASSES AND MODULES Built-in essentials Strings, symbols, and other scalar objects Collection and container objects Collections central: Enumerable and Enumerator Regular expressions and regexp-based string operations File and I/O operations PART 3 RUBY DYNAMICS Object individuation Callable and runnable objects Callbacks, hooks, and runtime introspection

The Way to Go

An Introduction to Programming and Computing

Beginning x64 Assembly Programming

From Novice to AVX Professional

Beginning Groovy and Grails

From Novice to Professional

Data Pipelines with Apache Airflow teaches you how to build and maintain effective data pipelines. Summary A successful pipeline moves data efficiently, minimizing pauses and blockages between tasks, keeping every process along the way operational. Apache Airflow provides a single customizable environment for building and managing data pipelines, eliminating the need for a hodgepodge collection of tools, snowflake code, and homegrown processes. Using real-world scenarios and examples, Data Pipelines with Apache Airflow teaches you how to simplify and automate data pipelines, reduce operational overhead, and smoothly integrate all the technologies in your stack. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Data pipelines manage the flow of data from initial collection through consolidation, cleaning, analysis, visualization, and more. Apache Airflow provides a single platform you can use to design, implement, monitor, and maintain your pipelines. Its easy-to-use UI, plug-and-play options, and flexible Python scripting make Airflow perfect for any data management task. About the book Data Pipelines with Apache Airflow teaches you how to build and maintain effective data pipelines. You ' ll explore the most common usage patterns, including aggregating multiple data sources, connecting to and from data lakes, and cloud deployment. Part reference and part tutorial, this practical guide covers every aspect of the directed acyclic graphs (DAGs) that power Airflow, and how to customize them for your pipeline ' s needs. What's inside Build, test, and deploy Airflow pipelines as DAGs Automate moving and transforming data Analyze historical datasets using backfilling Develop custom components Set up Airflow in production environments About the reader For DevOps, data engineers, machine learning engineers, and sysadmins with intermediate Python skills. About the author Bas Harenslak and Julian de Ruiter are data engineers with extensive experience using Airflow to develop pipelines for major companies. Bas is also an Airflow committer. Table of Contents PART 1 - GETTING STARTED 1 Meet Apache Airflow 2 Anatomy of an Airflow DAG 3 Scheduling in Airflow 4 Templating tasks using the Airflow context 5 Defining dependencies between tasks PART 2 - BEYOND THE BASICS 6 Triggering workflows 7 Communicating with external systems 8 Building custom components 9 Testing 10 Running tasks in containers PART 3 - AIRFLOW IN PRACTICE 11 Best practices 12 Operating Airflow in production 13 Securing Airflow 14 Project: Finding the fastest way to get around NYC PART 4 - IN THE CLOUDS 15 Airflow in the clouds 16 Airflow on AWS 17 Airflow on Azure 18 Airflow in GCP

Rust Programming for Beginners

An illustrated guide for programmers and other curious people

The Longest War

Rust

Get Started with Rust 2021 Edition

A hands-on guide to developing fast and secure web apps with the Rust programming language