

# Rust Programming Language The Manga Guide

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.

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 productsBuild 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!

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.

The adorable new odd-couple cat comedy manga from the creator of the beloved Chi's Sweet Home and Chi's Sweet Adventures, in full color and formatted for English readers, just like Chi! Sue is an aging housecat who's looking forward to living out her life in peace... but her plans change when the mischievous black tomcat Tai-chan enters the picture! Hey! Sue never signed up to be a catsitter! Sue and Tai-chan is the latest from the reigning meow-narch of cute kitty comics, Konami Kanata.

Ayumi is a world-class shogi (Japanese chess) player who can't be beaten—that is,

until she loses to a powerful computer called the Shooting Star. Ayumi vows to find out everything she can about her new nemesis. Lucky for her, Yuu Kano, the genius programmer behind the Shooting Star, is willing to teach her all about the inner workings of the microprocessor—the “brain” inside all computers, phones, and gadgets. Follow along with Ayumi in The Manga Guide to Microprocessors and you’ll learn about:

- How the CPU processes information and makes decision
- How computers perform arithmetic operations and store information
- logic gates and how they’re used in integrated circuits
- the Key components of modern computers, including registers, GPUs, and RAM
- Assembly language and how it differs from high-level programming languages

Whether you’re a computer science student or just want to understand the power of microprocessors, you’ll find what you need to know in The Manga Guide to Microprocessors.

Systems programming provides the foundation for the world's computation. Developing 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 interthread data races. 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 Language basics including error handling, crates and modules, structs, and enums How to write flexible, efficient code with traits and generics Rust's key power tools: closures, iterators, and asynchronous programming Collections, strings and text, input and output, concurrency, macros, unsafe code, and interfacing with foreign functions This updated edition covers Rust 1.50 (February 2021).

Python programmers will improve their computer science skills with these useful one-liners. Python One-Liners will teach you how to read and write "one-liners": concise statements of useful functionality packed into a single line of code. You'll learn how to systematically unpack and understand any line of Python code, and write eloquent, powerfully compressed Python like an expert. The book's five chapters cover tips and tricks, regular expressions, machine learning, core data science topics, and useful algorithms. Detailed explanations of one-liners introduce key computer science concepts and boost your coding and analytical skills. You'll learn about advanced Python features such as list comprehension, slicing, lambda functions, regular expressions, map and reduce functions, and slice assignments. You'll also learn how to:

- Leverage data structures to solve real-world problems, like using Boolean indexing to find cities with above-average pollution
- Use NumPy basics such as array, shape,

axis, type, broadcasting, advanced indexing, slicing, sorting, searching, aggregating, and statistics • Calculate basic statistics of multidimensional data arrays and the K-Means algorithms for unsupervised learning • Create more advanced regular expressions using grouping and named groups, negative lookaheads, escaped characters, whitespaces, character sets (and negative character sets), and greedy/nongreedy operators • Understand a wide range of computer science topics, including anagrams, palindromes, supersets, permutations, factorials, prime numbers, Fibonacci numbers, obfuscation, searching, and algorithmic sorting By the end of the book, you'll know how to write Python at its most refined, and create concise, beautiful pieces of "Python art" in merely a single line.

My Kids Just Gave Me a Computer, What Do I Do Now? Computers for Seniors is a step-by-step, full-color guide that will take you all the way from pressing the "On" button on your new computer to being a confident user who can send email to family and friends, shop online safely, read the latest news, watch funny YouTube videos, share cute pictures of your grandkids, check the weather forecast, and much more. You'll learn to: -Plug in, set up, and turn on your computer -Print and share photos of your grandkids, vacations, pets, friends, and special life events -Install helpful tools like a calendar, money manager, and weather tracker -Search the internet for news, recipes, gardening tips, sports updates, and anything else that interests you -Watch entertaining YouTube videos or educational lectures and make video calls to anywhere in the world

-Find and listen to new music (or your favorite classics) and read electronic books  
-Email your friends and family -Stay safe online and keep your private information secure  
Computers for Seniors will show you how to get what you really want from your PC, with the help of full-color illustrations, friendly instructions, and a touch of humor. Each lesson has small exercises to test your skills and help you practice, to make sure you feel comfortable with what you've learned before you move on. It's never too late to have fun and get more out of your PC—Computers for Seniors will ease you into the computer generation by guiding you every step of the way.

A primer on the underlying technologies that allow computer programs to work. Covers topics like computer hardware, combinatorial logic, sequential logic, computer architecture, computer anatomy, and Input/Output. Many coders are unfamiliar with the underlying technologies that make their programs run. But why should you care when your code appears to work? Because you want it to run well and not be riddled with hard-to-find bugs. You don't want to be in the news because your code had a security problem. Lots of technical detail is available online but it's not organized or collected into a convenient place. In *The Secret Life of Programs*, veteran engineer Jonathan E. Steinhart explores--in depth--the foundational concepts that underlie the machine. Subjects like computer hardware, how software behaves on hardware, as well as how people have solved problems using technology over time. You'll learn:

- How the real world is converted into a form that computers understand, like bits, logic, numbers, text, and colors
- The fundamental building blocks that make up a computer including logic gates, adders, decoders, registers, and memory
- Why designing programs to match computer



hardware, especially memory, improves performance • How programs are converted into machine language that computers understand • How software building blocks are combined to create programs like web browsers • Clever tricks for making programs more efficient, like loop invariance, strength reduction, and recursive subdivision • The fundamentals of computer security and machine intelligence • Project design, documentation, scheduling, portability, maintenance, and other practical programming realities. Learn what really happens when your code runs on the machine and you'll learn to craft better, more efficient code.

The Ruby programming language is perfect for beginners: easy to learn, powerful, and fun to use! But wouldn't it be more fun if you were learning with the help of some wizards and dragons? Ruby Wizardry is a playful, illustrated tale that will teach you how to program in Ruby by taking you on a fantastical journey. As you follow the adventures of young heroes Ruben and Scarlet, you'll learn real programming skills, like how to: –Use fundamental concepts like variables, symbols, arrays, and strings –Work with Ruby hashes to create a programmable breakfast menu –Control program flow with loops and conditionals to help the Royal Plumber –Test your wild and crazy ideas in IRB and save your programs as scripts –Create a class of mini-wizards, each with their own superpower! –Organize and reuse your code with methods and lists –Write your own amazing interactive stories using Ruby Along the way, you'll meet colorful characters from around the kingdom, like the hacker Queen, the Off-White Knight, and Wherefore the minstrel. Ruby Wizardry will have you (or your little wizard) hooked on programming in no time. For ages 10+ (and their parents!)

"Contains Attack on Titan vol. 21-25"--Back cover.

A fast-paced, thorough introduction to modern C++ written for experienced programmers. After

reading C++ Crash Course, you'll be proficient in the core language concepts, the C++ Standard Library, and the Boost Libraries. C++ is one of the most widely used languages for real-world software. In the hands of a knowledgeable programmer, C++ can produce small, efficient, and readable code that any programmer would be proud of. Designed for intermediate to advanced programmers, C++ Crash Course cuts through the weeds to get you straight to the core of C++17, the most modern revision of the ISO standard. Part 1 covers the core of the C++ language, where you'll learn about everything from types and functions, to the object life cycle and expressions. Part 2 introduces you to the C++ Standard Library and Boost Libraries, where you'll learn about all of the high-quality, fully-featured facilities available to you. You'll cover special utility classes, data structures, and algorithms, and learn how to manipulate file systems and build high-performance programs that communicate over networks. You'll learn all the major features of modern C++, including:

- Fundamental types, reference types, and user-defined types
- The object lifecycle including storage duration, memory management, exceptions, call stacks, and the RAII paradigm
- Compile-time polymorphism with templates and run-time polymorphism with virtual classes
- Advanced expressions, statements, and functions
- Smart pointers, data structures, dates and times, numerics, and probability/statistics facilities
- Containers, iterators, strings, and algorithms
- Streams and files, concurrency, networking, and application development

With well over 500 code samples and nearly 100 exercises, C++ Crash Course is sure to help you build a strong C++ foundation.

Prolog is a programming language, but a rather unusual one. Prolog" is short for Programming with Logic", and the link with logic gives Prolog its special character. At the heart of Prolog lies

a surprising idea: don't tell the computer what to do. Instead, describe situations of interest, and compute by asking questions. Prolog will logically deduce new facts about the situations and give its deductions back to us as answers. Why learn Prolog? For a start, its "say what the problem is, rather than how to solve it" stance, means that it is a very high level language, good for knowledge rich applications such as artificial intelligence, natural language processing, and the semantic web. So by studying Prolog, you gain insight into how sophisticated tasks can be handled computationally. Moreover, Prolog requires a different mindset. You have to learn to see problems from a new perspective, declaratively rather than procedurally. Acquiring this mindset, and learning to appreciate the links between logic and programming, makes the study of Prolog both challenging and rewarding. Learn Prolog Now! is a practical introduction to this fascinating language. Freely available as a web-book since 2002 (see [www.learnprolognow.org](http://www.learnprolognow.org)) Learn Prolog Now! has become one of the most popular introductions to the Prolog programming language, an introduction prized for its clarity and down-to-earth approach. It is widely used as a textbook at university departments around the world, and even more widely used for self study. College Publications is proud to present here the first hard-copy version of this online classic. Carefully revised in the light of reader's feedback, and now with answers to all the exercises, here you will find the essential material required to help you learn Prolog now.

From the creator of Oreimo comes Eromanga Sensei, a manga about the world of light novels and currently a hit anime on Crunchyroll! The "haunted house" next door scaring Sagiri has an even scarier truth behind it...namely, the fact Elf Yamada, Masamune's rival in the light novel game, was able to buy the place with cash! And why not, when she's sold over two million

books and already has an anime based on her work? In fact there's just one thing Masamune has that she doesn't--the mysterious illustrator Eromanga Sensei. But Elf is determined to change that! Contains a message from original author Tsukasa Fushimi. Features a bonus illustration gallery and color opening page.

Raised in a paranormal research facility, psychic Kai Kadou is assigned by his mentor, Eiji Sagimiya, to expose a guerrilla band that is using illegal psychics for personal gain--an effort during which he falls into the hands of an outsider who questionst

Computer Graphics from Scratch demystifies the algorithms used in modern graphics software and guides beginners through building photorealistic 3D renders. Computer graphics programming books are often math-heavy and intimidating for newcomers. Not this one.

Computer Graphics from Scratch takes a simpler approach by keeping the math to a minimum and focusing on only one aspect of computer graphics, 3D rendering. You'll build two complete, fully functional renderers: a raytracer, which simulates rays of light as they bounce off objects, and a rasterizer, which converts 3D models into 2D pixels. As you progress you'll learn how to create realistic reflections and shadows, and how to render a scene from any point of view. Pseudocode examples throughout make it easy to write your renderers in any language, and links to live JavaScript demos of each algorithm invite you to explore further on your own. Learn how to:

- Use perspective projection to draw 3D objects on a 2D plane
- Simulate the way rays of light interact with surfaces
- Add mirror-like reflections and cast shadows to objects
- Render a scene from any camera position using clipping planes
- Use flat, Gouraud, and Phong shading to mimic real surface lighting
- Paint texture details onto basic shapes to create realistic-looking objects

Whether you're an aspiring graphics engineer

or a novice programmer curious about how graphics algorithms work, Gabriel Gambetta's simple, clear explanations will quickly put computer graphics concepts and rendering techniques within your reach. All you need is basic coding knowledge and high school math. Computer Graphics from Scratch will cover the rest.

The fight to make Rin-chan the most popular Vocaloid has never been so much fun, as her smallest everyday activities at school, home, and work get blown up online to major celebrity events! Based on the video with over 2.5 million combined views on NicoNico and YouTube, the Rin-Chan Now! manga is written, drawn and edited by the video creators! Hatsune Miku is an international pop phenomenon! This is the Second of a Four part series on Hatsune Miku's RinChan! • Like Hatsune Miku: Mikubon, Rin-Chan Now! is made by famous Vocaloid music video creators. • The popular Rin was in Unofficial Hatsune Mix and was on the cover of Mikubon. • Four pages in full color. • In the larger Unofficial Hatsune Mix page size.

Racket is a descendant of Lisp, a programming language renowned for its elegance, power, and challenging learning curve. But while Racket retains the functional goodness of Lisp, it was designed with beginning programmers in mind. Realm of Racket is your introduction to the Racket language. In Realm of Racket, you'll learn to program by creating increasingly complex games. Your journey begins with the Guess My Number game and coverage of some basic Racket etiquette. Next you'll dig into syntax and semantics, lists, structures, and conditionals, and learn to work with recursion and the GUI as you build the Robot Snake game. After that it's on to lambda and mutant structs (and an Orc Battle), and fancy loops and the Dice of Doom. Finally, you'll explore laziness, AI, distributed games, and the Hungry Henry game. As you progress through the games, chapter checkpoints and challenges help reinforce what you've

learned. Offbeat comics keep things fun along the way. As you travel through the Racket realm, you'll: –Master the quirks of Racket's syntax and semantics –Learn to write concise and elegant functional programs –Create a graphical user interface using the 2htdp/image library –Create a server to handle true multiplayer games Realm of Racket is a lighthearted guide to some serious programming. Read it to see why Racketeers have so much fun!

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.

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 ...

When it comes to choosing, using, and maintaining a database, understanding its internals is essential. But with so many distributed databases and tools available today, it's often difficult to understand what each one offers and how they differ. With this practical guide, Alex Petrov guides developers through the concepts behind modern database and storage engine internals. Throughout the book, you'll explore relevant material gleaned from numerous books, papers, blog posts, and the source code of several open source databases. These resources

are listed at the end of parts one and two. You'll discover that the most significant distinctions among many modern databases reside in subsystems that determine how storage is organized and how data is distributed. This book examines: Storage engines: Explore storage classification and taxonomy, and dive into B-Tree-based and immutable Log Structured storage engines, with differences and use-cases for each Storage building blocks: Learn how database files are organized to build efficient storage, using auxiliary data structures such as Page Cache, Buffer Pool and Write-Ahead Log Distributed systems: Learn step-by-step how nodes and processes connect and build complex communication patterns Database clusters: Which consistency models are commonly used by modern databases and how distributed storage systems achieve consistency

-- 55% OFF For Bookstores! -- Are you looking for the PERFECT introduction into the world of coding? Want to uncover the secrets of Python, SQL, C++ and so much more? Are you looking for the ultimate guide to getting started with programming? Then this bundle is for you. Written with the beginner in mind, this incredible 7-in-1 book bundle brings you everything you need to know about programming. Packed with a ton of advice and step-by-step instructions on all the most popular and useful languages, you'll explore how even a complete beginner can get started with ease! Covering data science, Arduino, and even Raspberry pi, you'll learn the fundamentals of object-oriented programming, operators, variables, loops, classes, arrays, strings and so much more! Here's just a little of what you'll discover inside: Uncovering The Secrets of C++, C#, Python, SQL and More Breaking Down The Fundamentals of Data Science Understanding The Different Classes, Operations, and Data Types Fundamental Programming Skills That YOU Need To Know Tips and Tricks For Getting The Most out of

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Each Language The Best Strategies For Using Arduino and Raspberry Pi Common Errors and How To Troubleshoot Them And Much More! No matter your level of programming experience, this bundle uses step-by-step instructions and easy-to-follow advice so you can get the most out of programming. Explore these amazing languages, master the fundamentals of programming, and unleash your programming potential today! Buy it now and let your customers start their journey in programming!

A clear and practical guide to building games in libGDX. This book is great for Indie and existing game developers, as well as those who want to get started with game development using libGDX. Java game knowledge of game development basics is recommended.

Master professional-level coding in Rust. For developers who've mastered the basics, this book is the next step on your way to professional-level programming in Rust. It covers everything you need to build and maintain larger code bases, write powerful and flexible applications and libraries, and confidently expand the scope and complexity of your projects. Author Jon Gjengset takes you deep into the Rust programming language, dissecting core topics like ownership, traits, concurrency, and unsafe code. You'll explore key concepts like type layout and trait coherence, delve into the inner workings of concurrent programming and asynchrony with `async/await`, and take a tour of the world of `no_std` programming. Gjengset also provides expert guidance on API design, testing strategies, and error handling, and will help develop your understanding of foreign function interfaces, object safety, procedural macros, and much more. You'll Learn:

- \* How to design reliable, idiomatic, and ergonomic Rust programs based on best principles
- \* Effective use of declarative and procedural macros, and the difference between them
- \* How asynchrony works in Rust - all the way from the Pin and



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Waker types used in manual implementations of Futures, to how `async/await` saves you from thinking about most of those words \* What it means for code to be unsafe, and best practices for writing and interacting with unsafe functions and traits \* How to organize and configure more complex Rust projects so that they integrate nicely with the rest of the ecosystem \* How to write Rust code that can interoperate with non-Rust libraries and systems, or run in constrained and embedded environments Brimming with practical, pragmatic insights that you can immediately apply, *Rust for Rustaceans* helps you do more with Rust, while also teaching you its underlying mechanisms.

The *Rust Programming Language* is the official, definitive guide to Rust, a hugely popular, community-supported programming language. The reader will learn all about Rust's ownership rules, which lie at the heart of Rust's reliability and crash-resistant compiling. The *Rust Programming Language* covers everything from basic concepts like variable bindings, control flow, functions, and error handling, to more advanced topics, such as crates, generics, concurrency, and the nitty gritty of Rust's type system.

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. This book constitutes the refereed post-conference proceedings of 10 workshops held at the 35th International ISC High Performance 2020 Conference, in

Frankfurt, Germany, in June 2020: First Workshop on Compiler-assisted Correctness Checking and Performance Optimization for HPC (C3PO); First International Workshop on the Application of Machine Learning Techniques to Computational Fluid Dynamics Simulations and Analysis (CFDML); HPC I/O in the Data Center Workshop (HPC-IODC); First Workshop "Machine Learning on HPC Systems" (MLHPCS); First International Workshop on Monitoring and Data Analytics (MODA); 15th Workshop on Virtualization in High-Performance Cloud Computing (VHPC). The 25 full papers included in this volume were carefully reviewed and selected. They cover all aspects of research, development, and application of large-scale, high performance experimental and commercial systems. Topics include high-performance computing (HPC), computer architecture and hardware, programming models, system software, performance analysis and modeling, compiler analysis and optimization techniques, software sustainability, scientific applications, deep learning.

An approachable, hands-on guide to understanding how computers work, from low-level circuits to high-level code. *How Computers Really Work* is a hands-on guide to the computing ecosystem: everything from circuits to memory and clock signals, machine code, programming languages, operating systems, and the internet. But you won't just read about these concepts, you'll test your knowledge

with exercises, and practice what you learn with 41 optional hands-on projects. Build digital circuits, craft a guessing game, convert decimal numbers to binary, examine virtual memory usage, run your own web server, and more. Explore concepts like how to:

- Think like a software engineer as you use data to describe a real world concept
- Use Ohm's and Kirchhoff's laws to analyze an electrical circuit
- Think like a computer as you practice binary addition and execute a program in your mind, step-by-step

The book's projects will have you translate your learning into action, as you:

- Learn how to use a multimeter to measure resistance, current, and voltage
- Build a half adder to see how logical operations in hardware can be combined to perform useful functions
- Write a program in assembly language, then examine the resulting machine code
- Learn to use a debugger, disassemble code, and hack a program to change its behavior without changing the source code
- Use a port scanner to see which internet ports your computer has open
- Run your own server and get a solid crash course on how the web works

And since a picture is worth a thousand bytes, chapters are filled with detailed diagrams and illustrations to help clarify technical complexities. Requirements: The projects require a variety of hardware - electronics projects need a breadboard, power supply, and various circuit components; software projects are performed on a Raspberry Pi. Appendix B

contains a complete list. Even if you skip the projects, the book's major concepts are clearly presented in the main text.

Dive Into Algorithms is a broad introduction to algorithms using the Python Programming Language. Dive Into Algorithms is a wide-ranging, Pythonic tour of many of the world's most interesting algorithms. With little more than a bit of computer programming experience and basic high-school math, you'll explore standard computer science algorithms for searching, sorting, and optimization; human-based algorithms that help us determine how to catch a baseball or eat the right amount at a buffet; and advanced algorithms like ones used in machine learning and artificial intelligence. You'll even explore how ancient Egyptians and Russian peasants used algorithms to multiply numbers, how the ancient Greeks used them to find greatest common divisors, and how Japanese scholars in the age of samurai designed algorithms capable of generating magic squares. You'll explore algorithms that are useful in pure mathematics and learn how mathematical ideas can improve algorithms. You'll learn about an algorithm for generating continued fractions, one for quick calculations of square roots, and another for generating seemingly random sets of numbers. You'll also learn how to:

- Use algorithms to debug code, maximize revenue, schedule tasks, and create decision trees
- Measure the efficiency and speed of algorithms
-

Generate Voronoi diagrams for use in various geometric applications • Use algorithms to build a simple chatbot, win at board games, or solve sudoku puzzles • Write code for gradient ascent and descent algorithms that can find the maxima and minima of functions • Use simulated annealing to perform global optimization • Build a decision tree to predict happiness based on a person's characteristics Once you've finished this book you'll understand how to code and implement important algorithms as well as how to measure and optimize their performance, all while learning the nitty-gritty details of today's most powerful algorithms.

The real challenge of programming isn't learning a language's syntax—it's learning to creatively solve problems so you can build something great. In this one-of-a-kind text, author V. Anton Spraul breaks down the ways that programmers solve problems and teaches you what other introductory books often ignore: how to Think Like a Programmer. Each chapter tackles a single programming concept, like classes, pointers, and recursion, and open-ended exercises throughout challenge you to apply your knowledge. You'll also learn how to: –Split problems into discrete components to make them easier to solve –Make the most of code reuse with functions, classes, and libraries –Pick the perfect data structure for a particular job –Master more advanced programming tools like recursion and

dynamic memory –Organize your thoughts and develop strategies to tackle particular types of problems Although the book's examples are written in C++, the creative problem-solving concepts they illustrate go beyond any particular language; in fact, they often reach outside the realm of computer science. As the most skillful programmers know, writing great code is a creative art—and the first step in creating your masterpiece is learning to Think Like a Programmer.

The Rust Programming Language No Starch Press

What if William Shakespeare were asked to generate the Fibonacci series or Jane Austen had to write a factorial program? In *If Hemingway Wrote JavaScript*, author Angus Croll imagines short JavaScript programs as written by famous wordsmiths. The result is a peculiar and charming combination of prose, poetry, and programming. The best authors are those who obsess about language—and the same goes for JavaScript developers. To master either craft, you must experiment with language to develop your own style, your own idioms, and your own expressions. To that end, *If Hemingway Wrote JavaScript* playfully bridges the worlds of programming and literature for the literary geek in all of us.

Featuring original artwork by Miran Lipovač.

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.

**BRIDGE THE GAP BETWEEN NOVICE AND PROFESSIONAL** You've completed a basic Python programming tutorial or finished Al Sweigart's bestseller, *Automate the Boring Stuff with Python*. What's the next step toward becoming a capable, confident software developer? Welcome to *Beyond the Basic Stuff with Python*. More than a mere collection of advanced syntax and masterful tips for writing clean code, you'll learn how to advance your Python programming skills by using the command line and other professional tools like code formatters, type checkers, linters, and version control. Sweigart takes you through best practices for setting up your development environment, naming variables, and improving readability, then tackles documentation, organization and performance measurement, as well as object-oriented design and the Big-O algorithm analysis commonly used in coding interviews. The skills you learn will boost your ability to program--not just in Python but in any language. You'll learn:

- Coding style, and how to use Python's Black auto-formatting tool for cleaner code
- Common sources of bugs, and how to detect them with static analyzers
- How to structure the files in your code projects with the Cookiecutter template tool
- Functional programming techniques like lambda and higher-order functions
- How to profile the speed of your code with Python's built-in `timeit` and `cProfile` modules
- The computer science behind Big-O algorithm analysis
- How to make your comments and docstrings informative, and how often to write them
- How to create classes in object-oriented programming, and why they're used to organize code

Toward the end of the book you'll read a detailed source-code breakdown of two classic command-line games, the Tower of Hanoi (a logic puzzle) and Four-in-a-Row (a two-

player tile-dropping game), and a breakdown of how their code follows the book's best practices. You'll test your skills by implementing the program yourself. Of course, no single book can make you a professional software developer. But *Beyond the Basic Stuff with Python* will get you further down that path and make you a better programmer, as you learn to write readable code that's easy to debug and perfectly Pythonic Requirements: Covers Python 3.6 and higher

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

Vim is a fast and efficient text editor that will make you a faster and more efficient developer. It's available on almost every OS, and if you master the techniques in this book, you'll never



need another text editor. In more than 120 Vim tips, you'll quickly learn the editor's core functionality and tackle your trickiest editing and writing tasks. This beloved bestseller has been revised and updated to Vim 7.4 and includes three brand-new tips and five fully revised tips. A highly configurable, cross-platform text editor, Vim is a serious tool for programmers, web developers, and sysadmins who want to raise their game. No other text editor comes close to Vim for speed and efficiency; it runs on almost every system imaginable and supports most coding and markup languages. Learn how to edit text the "Vim way": complete a series of repetitive changes with The Dot Formula using one keystroke to strike the target, followed by one keystroke to execute the change. Automate complex tasks by recording your keystrokes as a macro. Discover the "very magic" switch that makes Vim's regular expression syntax more like Perl's. Build complex patterns by iterating on your search history. Search inside multiple files, then run Vim's substitute command on the result set for a project-wide search and replace. All without installing a single plugin! Three new tips explain how to run multiple ex commands as a batch, autocomplete sequences of words, and operate on a complete search match. Practical Vim, Second Edition will show you new ways to work with Vim 7.4 more efficiently, whether you're a beginner or an intermediate Vim user. All this, without having to touch the mouse. What You Need: Vim version 7.4

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.

Website security made easy. This book covers the most common ways websites get hacked and how web developers can defend themselves. The world has changed. Today, every time you make a site live, you're opening it up to attack. A first-time developer can easily be discouraged by the difficulties involved with properly securing a website. But have hope: an army of security researchers is out there discovering, documenting, and fixing security flaws. Thankfully, the tools you'll need to secure your site are freely available and generally easy to use. *Web Security for Developers* will teach you how your websites are vulnerable to attack and how to protect them. Each chapter breaks down a major security vulnerability and explores a real-world attack, coupled with plenty of code to show you both the vulnerability and the fix. You'll learn how to:

- Protect against SQL injection attacks, malicious JavaScript, and cross-site request forgery
- Add authentication and shape access control to protect accounts
- Lock down user accounts to prevent attacks that rely on guessing passwords, stealing sessions,
- or escalating privileges
- Implement encryption
- Manage vulnerabilities in legacy code
- Prevent

information leaks that disclose vulnerabilities • Mitigate advanced attacks like malvertising and denial-of-service As you get stronger at identifying and fixing vulnerabilities, you'll learn to deploy disciplined, secure code and become a better programmer along the way.

Power up your Python with object-oriented programming and learn how to write powerful, efficient, and re-usable code. Object-Oriented Python is an intuitive and thorough guide to mastering object-oriented programming from the ground up. You'll cover the basics of building classes and creating objects, and put theory into practice using the pygame package with clear examples that help visualize the object-oriented style. You'll explore the key concepts of object-oriented programming -- encapsulation, polymorphism, and inheritance -- and learn not just how to code with objects, but the absolute best practices for doing so. Finally, you'll bring it all together by building a complex video game, complete with full animations and sounds. The book covers two fully functional Python code packages that will speed up development of graphical user interface (GUI) programs in Python.

Rally Vincent and Minnie-May Hopkins, one an excellent marksmen and the other an explosives expert, are Chicago's top bounty hunters and together, with useful friends and associates, they make up the Gunsmith Cats.

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