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Eight-year-old Terysa loves to solve problems. Give her some time and she'll figure out how to solve anything. So when Terysa is given an older computer for her birthday, she faces her biggest challenge yet: can she make it talk? Terysa is full of good ideas, but will any of them work, or does she need to change her approach and think less like a human and think more like a computer? This fun and interactive story introduces children to the basics of coding through an engaging narrative based on the true story of a little girl who loves to solve problems! Looking for more resources for your family or students? Sign up to extend the lesson with FREE age-appropriate lessons according to state and federal education standards at https://www.terysasolvesit.com/extend-the-lesson The Cerebral Code is a new understanding of how Darwinian processes could operate in the brain to shape mental images in only seconds, starting with shuffled memories no better than the jumble of our nighttime dreams, but evolving into something of quality, such as a sentence to speak aloud. Jung said that dreaming goes on continuously but you can't see it when you are awake, just as you can't see the stars in the daylight because it is too bright. Calvin's is a theory for what goes on, hidden from view by the glare of waking mental operations, that produces our peculiarly human type of consciousness with its versatile intelligence. As Piaget emphasized in 1929, intelligence is what we use when we don't know what to do, when we have to grope rather than using a standard response. Calvin tackles a mechanism for doing this exploration and improvement offline, as we think before we act or practice the art of good guessing. Surprisingly, the subtitle's mosaics of the mind is not a literary metaphor. For the first time, it is a description of a mechanism of what appears to be an appropriate level of explanation for many mental phenomena, that of hexagonal mosaics of electrical activity that compete for territory in the association cortex of the brain. This two-dimensional mosaic is predicted to grow and dissolve much as the sugar crystals do in the bottom of a supersaturated glass of iced tea. A Bradford Book This book offers a gentle motivation and introduction to computational thinking, in particular to algorithms and how they can be coded to solve significant, topical problems from domains such as finance, cryptography, Web search, and data compression. The book is suitable for undergraduate students in computer science, engineering, and applied mathematics, university students in other fields, high-school students with an interest in STEM subjects, and professionals who want an insight into algorithmic solutions and the related mindset. While the authors assume only basic mathematical knowledge, they uphold the scientific rigor that is indispensable for transforming general ideas into executable algorithms. A supporting website contains examples and Python code for implementing the algorithms in the book. Learn to think like a coder without a computer! Each of the fun craft activities included in this book will teach you about a key concept of computer programming and can be done completely offline. Then you can put your skills into practice by trying out the simple programs provided in the online, child-friendly computer language. Scratch. This crafty coding book breaks down the principles of coding into bite-sized chunks that will get you thinking like a computer scientist in no time. Learn about loops by making a friendship bracelet, find out about programming by planning a scavenger hunt, and discover how functions work with paper fortune tellers. Children can then use their new knowledge to code for real by following the clear instructions to build programs in Scratch 3.0. Perfect for kids aged 7-9, the various STEAM activities will help teach children the crucial skills of

logical thinking that will give them a head-start for when they begin programming on a computer. Famous scientist pages teach children about coding pioneers, such as Alan Turing and Katherine Johnson, and topic pages, such as the Internet, give kids a wider understanding of the subject. Written by computer science expert Kiki Prottsman, How to be a Coder is so much fun, kids won't realize they're learning! Why every child needs to learn to code: the shift from “computational thinking” to computational participation. Coding, once considered an arcane craft practiced by solitary techies, is now recognized by educators and theorists as a crucial skill, even a new literacy, for all children. Programming is often promoted in K-12 schools as a way to encourage “computational thinking”—which has now become the umbrella term for understanding what computer science has to contribute to reasoning and communicating in an ever-increasingly digital world. In Connected Code, Yasmin Kafai and Quinn Burke argue that although computational thinking represents an excellent starting point, the broader conception of “computational participation” better captures the twenty-first-century reality. Computational participation moves beyond the individual to focus on wider social networks and a DIY culture of digital “making.” Kafai and Burke describe contemporary examples of computational participation: students who code not for the sake of coding but to create games, stories, and animations to share; the emergence of youth programming communities; the practices and ethical challenges of remixing (rather than starting from scratch); and the move beyond stationary screens to programmable toys, tools, and textiles. "For coders early in their careers who are familiar with an object-oriented language, such as Java or C#"--Back cover. "A great book with deep insights into the bridge between programming and the human mind." - Mike Taylor, CGI Your brain responds in a predictable way when it encounters new or difficult tasks. This unique book teaches you concrete techniques rooted in cognitive science that will improve the way you learn and think about code. In The Programmer’s Brain: What every programmer needs to know about cognition you will learn: Fast and effective ways to master new programming languages Speed reading skills to quickly comprehend new code Techniques to unravel the meaning of complex code Ways to learn new syntax and keep it memorized Writing code that is easy for others to read Picking the right names for your variables Making your codebase more understandable to newcomers Onboarding new developers to your team Learn how to optimize your brain’s natural cognitive processes to read code more easily, write code faster, and pick up new languages in much less time. This book will help you through the confusion you feel when faced with strange and complex code, and explain a codebase in ways that can make a new team member productive in days! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Take advantage of your brain’s natural processes to be a better programmer. Techniques based in cognitive science make it possible to learn new languages faster, improve productivity, reduce the need for code rewrites, and more. This unique book will help you achieve these gains. About the book The Programmer’s Brain unlocks the way we think about code. It offers scientifically sound techniques that can radically improve the way you master new technology, comprehend code, and memorize syntax. You’ll learn how to benefit from productive struggle and turn confusion into a learning tool. Along the way, you’ll discover how to create study resources as you become an expert at teaching yourself and bringing new colleagues up to speed. What's inside Understand how your brain sees code Speed reading skills to learn code quickly Techniques to unravel complex code Tips for making codebases understandable About the reader For programmers who have experience working in more than one language. About the author Dr. Felienne Hermans is an associate professor at Leiden University in the Netherlands. She has spent the last decade researching programming, how to learn and how to teach it. Table of Contents PART 1 ON READING CODE BETTER 1 Decoding your confusion while coding 2 Speed reading for code 3 How to learn programming syntax quickly 4 How to read complex code PART 2 ON THINKING ABOUT CODE 5 Reaching a deeper understanding of code 6 Getting better at solving programming problems 7 Misconceptions: Bugs in thinking PART 3 ON WRITING BETTER CODE 8 How to get better at naming things 9 Avoiding bad code and cognitive load: Two frameworks 10 Getting better at solving complex problems PART 4 ON COLLABORATING ON CODE 11 The act of

writing code 12 Designing and improving larger systems 13 How to onboard new developers Offers a Ruby tutorial featuring fifty-two exercises that cover such topics as installing the Ruby environment, organizing and writing code, strings and text, object-oriented programming, debugging and automated testing, and basic game development. By the time my son was 16 years old he had already coded and published five apps to the Apple App Store. That same year he had accepted a job to work for one of the biggest companies in cybersecurity as a software engineer. At 16, my son had been dabbling in code and hacking phones for years.I taught my son how to code when he was 11 years old. Learning to code is something that many children can do at a proficient level if given the opportunity. Many parents ask me, "How were you able to get your son to code at that age?". After much thinking I know the answer is you have to provide children something that interests them and teach them how to "think in code".There is a saying that you never understand someone until you walk a mile in their shoes. When learning how to build technology you have to take the same approach. I believe you have to walk a mile in the technology's shoes. I wrote this so anyone can pick it up and quickly understand how code works. This book teaches anyone how to "think in code" so they can go on to build anything their imagination can come up with. Marcus J. Carey is the creator of the best selling Tribe of Hackers cybersecurity book series. Marcus is renowned in the cybersecurity industry and has spent his more than 20-year career working in penetration testing, incident response, and digital forensics with federal agencies such as NSA, DC3, DIA, and DARPA. He started his career in cryptography in the U.S. Navy and holds a Master's degree in Network Security from Capitol College. Marcus was previously the founder and CEO of Threatcare (acquired by ReliaQuest), a venture-backed cybersecurity and software services company based in Austin, Texas. He regularly speaks at security conferences across the country. Marcus is passionate about giving back to the community through things like mentorship, hackathons, and speaking engagements, and is a voracious reader in his spare time. If you’re just learning how to program, Julia is an excellent JIT-compiled, dynamically typed language with a clean syntax. This hands-on guide uses Julia 1.0 to walk you through programming one step at a time, beginning with basic programming concepts before moving on to more advanced capabilities, such as creating new types and multiple dispatch. Designed from the beginning for high performance, Julia is a general-purpose language ideal for not only numerical analysis and computational science but also web programming and scripting. Through exercises in each chapter, you’ll try out programming concepts as you learn them. Think Julia is perfect for students at the high school or college level as well as self-learners and professionals who need to learn programming basics. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand types, methods, and multiple dispatch Use debugging techniques to fix syntax, runtime, and semantic errors Explore interface design and data structures through case studies “A brilliant travel guide to the coming world of AI.” —Jeanette Winterson What does it mean to be creative? Can creativity be trained? Is it uniquely human, or could AI be considered creative? Mathematical genius and exuberant polymath Marcus du Sautoy plunges us into the world of artificial intelligence and algorithmic learning in this essential guide to the future of creativity. He considers the role of pattern and imitation in the creative process and sets out to investigate the programs and programmers—from Deep Mind and the Flow Machine to Botnik and WHIM—who are seeking to rival or surpass human innovation in gaming, music, art, and language. A thrilling tour of the landscape of invention, The Creativity Code explores the new face of creativity and the mysteries of the human code. “As machines outsmart us in ever more domains, we can at least comfort ourselves that one area will remain sacrosanct and uncomputable: human creativity. Or can we?...In his fascinating exploration of the nature of creativity, Marcus du Sautoy questions many of those assumptions.” —Financial Times “Fascinating...If all the experiences, hopes, dreams, visions, lusts, loves, and hatreds that shape the human imagination amount to nothing more than a ‘code,’ then sooner or later a machine will crack it. Indeed, du Sautoy assembles an eclectic array of evidence to show how that’s happening even now.” —The Times Teach Your Kids to Code is a

parent's and teacher's guide to teaching kids basic programming and problem solving using Python, the powerful language used in college courses and by tech companies like Google and IBM. Step-by-step explanations will have kids learning computational thinking right away, while visual and game-oriented examples hold their attention. Friendly introductions to fundamental programming concepts such as variables, loops, and functions will help even the youngest programmers build the skills they need to make their own cool games and applications. Whether you've been coding for years or have never programmed anything at all, Teach Your Kids to Code will help you show your young programmer how to: –Explore geometry by drawing colorful shapes with Turtle graphics –Write programs to encode and decode messages, play Rock-Paper-Scissors, and calculate how tall someone is in Ping-Pong balls –Create fun, playable games like War, Yahtzee, and Pong –Add interactivity, animation, and sound to their apps Teach Your Kids to Code is the perfect companion to any introductory programming class or after-school meet-up, or simply your educational efforts at home. Spend some fun, productive afternoons at the computer with your kids—you can all learn something! Explains how compilers translate high-level language source code (like code written in Python) into low-level machine code (code that the computer can understand) to help readers understand how to produce the best low-level, computer readable machine code. In the beginning, most software was written in assembly, the CPU's low-level language, in order to achieve acceptable performance on relatively slow hardware. Early programmers were sparing in their use of high-level language code, knowing that a high-level language compiler would generate crummy, low-level machine code for their software. Today, however, many programmers write in high-level languages like Python, C/C++/C#, Java, Swift. The result is often sloppy, inefficient code. But you don't need to give up the productivity and portability of high-level languages in order to produce more efficient software. In this second volume of the Write Great Code series, you'll learn: • How to analyze the output of a compiler to verify that your code does, indeed, generate good machine code • The types of machine code statements that compilers typically generate for common control structures, so you can choose the best statements when writing HLL code • Just enough 80x86 and PowerPC assembly language to read compiler output • How compilers convert various constant and variable objects into machine data, and how to use these objects to write faster and shorter programs NEW TO THIS EDITION, COVERAGE OF: • Programming languages like Swift and Java • Code generation on modern 64-bit CPUs • ARM processors on mobile phones and tablets • Stack-based architectures like the Java Virtual Machine • Modern language systems like the Microsoft Common Language Runtime With an understanding of how compilers work, you'll be able to write source code that they can translate into elegant machine code. That understanding starts right here, with Write Great Code, Volume 2: Thinking Low-Level, Writing High-Level. 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. This new edition of the popular book No Fear Coding offers current research, updated tools and more cross-curricular connections for K-5 teachers to integrate into their classes. Coding has become an essential skill for finding solutions to everyday problems, while computational thinking (CT) teaches reasoning and creativity, and offers an innovative approach to demonstrating content knowledge and seeing mathematical

processes in action. No Fear Coding introduced many K-5 educators to ways to bring coding into their curriculum by embedding computational thinking skills into activities for different content areas. This second edition features updated tools—including programmable robots and other physical computing devices—as well as new activities aligned to the ISTE Standards for Students and Computational Thinking Competencies. Also new in this edition: • New tools for teaching coding—including physical computing devices, block-based programming and AR/VR— along with methods for introducing, tutorials and lesson plans. • Teachable examples and activities that illustrate CT concepts—decomposition, pattern recognition, abstraction and algorithmic thinking. • Resources for deeper understanding and discussion questions for professional development and reflection on the practice of teaching coding and CT. • Tips on demystifying basic coding concepts so that teachers are comfortable teaching these concepts to their students. No Fear Coding, Second Edition will help build students' coding and CT knowledge to prepare them for the middle grades and beyond. What others in the trenches say about The Pragmatic Programmer... "The cool thing about this book is that it's great for keeping the programming process fresh. The book helps you to continue to grow and clearly comes from people who have been there." —Kent Beck, author of Extreme Programming Explained: Embrace Change "I found this book to be a great mix of solid advice and wonderful analogies!" —Martin Fowler, author of Refactoring and UML Distilled "I would buy a copy, read it twice, then tell all my colleagues to run out and grab a copy. This is a book I would never loan because I would worry about it being lost." —Kevin Ruland, Management Science, MSG-Logistics "The wisdom and practical experience of the authors is obvious. The topics presented are relevant and useful.... By far its greatest strength for me has been the outstanding analogies—tracer bullets, broken windows, and the fabulous helicopter-based explanation of the need for orthogonality, especially in a crisis situation. I have little doubt that this book will eventually become an excellent source of useful information for journeymen programmers and expert mentors alike." —John Lakos, author of Large-Scale C++ Software Design "This is the sort of book I will buy a dozen copies of when it comes out so I can give it to my clients." —Eric Vought, Software Engineer "Most modern books on software development fail to cover the basics of what makes a great software developer, instead spending their time on syntax or technology where in reality the greatest leverage possible for any software team is in having talented developers who really know their craft well. An excellent book." —Pete McBreen, Independent Consultant "Since reading this book, I have implemented many of the practical suggestions and tips it contains. Across the board, they have saved my company time and money while helping me get my job done quicker! This should be a desktop reference for everyone who works with code for a living." —Jared Richardson, Senior Software Developer, iRenaissance, Inc. "I would like to see this issued to every new employee at my company...." —Chris Cleeland, Senior Software Engineer, Object Computing, Inc. "If I'm putting together a project, it's the authors of this book that I want. . . . And failing that I'd settle for people who've read their book." —Ward Cunningham Straight from the programming trenches, The Pragmatic Programmer cuts through the increasing specialization and technicalities of modern software development to examine the core process--taking a requirement and producing working, maintainable code that delights its users. It covers topics ranging from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to Fight software rot; Avoid the trap of duplicating knowledge; Write flexible, dynamic, and adaptable code; Avoid programming by coincidence; Bullet-proof your code with contracts, assertions, and exceptions; Capture real requirements; Test ruthlessly and effectively; Delight your users; Build teams of pragmatic programmers; and Make your developments more precise with automation. Written as a series of self-contained sections and filled with entertaining anecdotes, thoughtful examples, and interesting analogies, The Pragmatic Programmer illustrates the best practices and major pitfalls of many different aspects of software development. Whether you're a new coder, an experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and

attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer. Understand and implement big data analysis solutions in pandas with an emphasis on performance. This book strengthens your intuition for working with pandas, the Python data analysis library, by exploring its underlying implementation and data structures. Thinking in Pandas introduces the topic of big data and demonstrates concepts by looking at exciting and impactful projects that pandas helped to solve. From there, you will learn to assess your own projects by size and type to see if pandas is the appropriate library for your needs. Author Hannah Stepanek explains how to load and normalize data in pandas efficiently, and reviews some of the most commonly used loaders and several of their most powerful options. You will then learn how to access and transform data efficiently, what methods to avoid, and when to employ more advanced performance techniques. You will also go over basic data access and munging in pandas and the intuitive dictionary syntax. Choosing the right DataFrame format, working with multi-level DataFrames, and how pandas might be improved upon in the future are also covered. By the end of the book, you will have a solid understanding of how the pandas library works under the hood. Get ready to make confident decisions in your own projects by utilizing pandas—the right way. What You Will Learn Understand the underlying data structure of pandas and why it performs the way it does under certain circumstancesDiscover how to use pandas to extract, transform, and load data correctly with an emphasis on performanceChoose the right DataFrame so that the data analysis is simple and efficient.Improve performance of pandas operations with other Python libraries Who This Book Is ForSoftware engineers with basic programming skills in Python keen on using pandas for a big data analysis project. Python software developers interested in big data. Good software design is simple and easy to understand. Unfortunately, the average computer program today is so complex that no one could possibly comprehend how all the code works. This concise guide helps you understand the fundamentals of good design through scientific laws—principles you can apply to any programming language or project from here to eternity. Whether you’re a junior programmer, senior software engineer, or non-technical manager, you’ll learn how to create a sound plan for your software project, and make better decisions about the pattern and structure of your system. Discover why good software design has become the missing science Understand the ultimate purpose of software and the goals of good design Determine the value of your design now and in the future Examine real-world examples that demonstrate how a system changes over time Create designs that allow for the most change in the environment with the least change in the software Make easier changes in the future by keeping your code simpler now Gain better knowledge of your software’s behavior with more accurate tests Expand your Python skills by working with data structures and algorithms in a refreshing context—through an eye-opening exploration of complexity science. Whether you’re an intermediate-level Python programmer or a student of computational modeling, you’ll delve into examples of complex systems through a series of exercises, case studies, and easy-to-understand explanations. You’ll work with graphs, algorithm analysis, scale-free networks, and cellular automata, using advanced features that make Python such a powerful language. Ideal as a text for courses on Python programming and algorithms, Think Complexity will also help self-learners gain valuable experience with topics and ideas they might not encounter otherwise. Work with NumPy arrays and SciPy methods, basic signal processing and Fast Fourier Transform, and hash tables Study abstract models of complex physical systems, including power laws, fractals and pink noise, and Turing machines Get starter code and solutions to help you re-implement and extend original experiments in complexity Explore the philosophy of science, including the nature of scientific laws, theory choice, realism and instrumentalism, and other topics Examine case studies of complex systems submitted by students and readers "Capital is the defining feature of modern economies, yet most people have no idea where it actually comes from. What is it, exactly, that transforms mere wealth into an asset that automatically creates more wealth? The Code of Capital explains how capital is created behind closed doors in the offices of private attorneys, and why this little-known fact is one of the biggest reasons for the widening wealth gap between the holders of capital and everybody else. In this revealing book, Katharina Pistor argues that

the law selectively "codes" certain assets, endowing them with the capacity to protect and produce private wealth. With the right legal coding, any object, claim, or idea can be turned into capital - and lawyers are the keepers of the code. Pistor describes how they pick and choose among different legal systems and legal devices for the ones that best serve their clients' needs, and how techniques that were first perfected centuries ago to code landholdings as capital are being used today to code stocks, bonds, ideas, and even expectations--assets that exist only in law. A powerful new way of thinking about one of the most pernicious problems of our time, The Code of Capital explores the different ways that debt, complex financial products, and other assets are coded to give financial advantage to their holders. This provocative book paints a troubling portrait of the pervasive global nature of the code, the people who shape it, and the governments that enforce it."--Provided by publisher. Practical techniques for writing code that is robust, reliable, and easy for team members to understand and adapt. Summary In Good Code, Bad Code you'll learn how to: Think about code like an effective software engineer Write functions that read like well-structured sentences Ensure code is reliable and bug free Effectively unit test code Identify code that can cause problems and improve it Write code that is reusable and adaptable to new requirements Improve your medium and long-term productivity Save yourself and your team time The difference between good code or bad code often comes down to how you apply the established practices of the software development community. In Good Code, Bad Code you'll learn how to boost your productivity and effectiveness with code development insights normally only learned through careful mentorship and hundreds of code reviews. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Software development is a team sport. For an application to succeed, your code needs to be robust and easy for others to understand, maintain, and adapt. Whether you're working on an enterprise team, contributing to an open source project, or bootstrapping a startup, it pays to know the difference between good code and bad code. About the book Good Code, Bad Code is a clear, practical introduction to writing code that's a snap to read, apply, and remember. With dozens of instantly-useful techniques, you'll find coding insights that normally take years of experience to master. In this fast-paced guide, Google software engineer Tom Long teaches you a host of rules to apply, along with advice on when to break them! What's inside Write functions that read like sentences Ensure your code stays bug-free How to sniff out bad code Save time for yourself and your team About the reader For coders early in their careers who are familiar with an object-oriented language, such as Java or C#. About the author Tom Long is a software engineer at Google where he works as a tech lead. Among other tasks, he regularly mentors new software engineers in professional coding best practices. Table of Contents PART 1 IN THEORY 1 Code quality 2 Layers of abstraction 3 Other engineers and code contracts 4 Errors PART 2 IN PRACTICE 5 Make code readable 6 Avoid surprises 7 Make code hard to misuse 8 Make code modular 9 Make code reusable and generalizable PART 3 UNIT TESTING 10 Unit testing principles 11 Unit testing practices Empower tomorrow's tech innovators Our students are avid users and consumers of technology. Isn't it time that they see themselves as the next technological innovators, too? Computational Thinking and Coding for Every Student is the beginner's guide for K-12 educators who want to learn to integrate the basics of computer science into their curriculum. Readers will find Strategies and activities for teaching computational thinking and coding inside and outside of school, at any grade level, across disciplines Instruction-ready lessons for every grade A discussion guide and companion website with videos, activities, and other resources A thought-provoking examination of artificial intelligence and how it reshapes human values, trust, and power around the world. Whether in medicine, money, or love, technologies powered by forms of artificial intelligence are playing an increasingly prominent role in our lives. As we cede more decisions to thinking machines, we face new questions about staying safe, keeping a job and having a say over the direction of our lives. The answers to those questions might depend on your race, gender, age, behavior, or nationality. New AI technologies can drive cars, treat damaged brains and nudge workers to be more productive, but they also can threaten, manipulate, and alienate us from others. They can pit nation against nation, but they also can help the global community tackle some of its

greatest challenges—from food crises to global climate change. In clear and accessible prose, global trends and strategy adviser Olaf Groth, AI scientist and social entrepreneur Mark Nitzberg, along with seasoned economics reporter Dan Zehr, provide a unique human-focused, global view of humanity in a world of thinking machines. A back-to-basics guide on coding for absolute beginners, whether adults or children – no prior experience required! Coding is set to change the way we work and the skills we will need in the future. For those who know nothing about coding, getting to grips with the basics is daunting. Too many of the beginner books launch straight into programming techniques but what is really needed is an understanding of the key concepts of coding. Programming then becomes much easier to grasp. This accessible, fun book goes right back to the very basics, teaching central concepts such as loops, data types, pseudocode and calculations without having to learn a single line of code! Using a set of dice, a deck of cards or a pack of dominoes to enjoy fun and straightforward exercises, you will practise key skills such as critical thinking, creativity, logic and problem-solving and begin to think like a coder without even turning on your computer. Once you are equipped with this basic toolkit, Think Like a Coder discusses the basic programmes that are available for beginners, keeping a focus on simple activities that draw analogies with the outside world to make learning easy and fun. Suitable for absolute beginners, adults and children. Designed to be a thorough yet lighthearted introduction for the complete beginner, Think Like a Coder is an essential addition to any keen programmer’s bookshelf. What will you learn from this book? It’s no secret the world around you is becoming more connected, more configurable, more programmable, more computational. You can remain a passive participant, or you can learn to code. With Head First Learn to Code you’ll learn how to think computationally and how to write code to make your computer, mobile device, or anything with a CPU do things for you. Using the Python programming language, you’ll learn step by step the core concepts of programming as well as many fundamental topics from computer science, such as data structures, storage, abstraction, recursion, and modularity. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Learn to Code uses a visually rich format to engage your mind, rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multi-sensory learning experience is designed for the way your brain really works. Learn to Code by Solving Problems is a practical introduction to programming using Python. It uses coding-competition challenges to teach you the mechanics of coding and how to think like a savvy programmer. Computers are capable of solving almost any problem when given the right instructions. That’s where programming comes in. This beginner’s book will have you writing Python programs right away. You’ll solve interesting problems drawn from real coding competitions and build your programming skills as you go. Every chapter presents problems from coding challenge websites, where online judges test your solutions and provide targeted feedback. As you practice using core Python features, functions, and techniques, you’ll develop a clear understanding of data structures, algorithms, and other programming basics. Bonus exercises invite you to explore new concepts on your own, and multiple-choice questions encourage you to think about how each piece of code works. You’ll learn how to: • Run Python code, work with strings, and use variables • Write programs that make decisions • Make code more efficient with while and for loops • Use Python sets, lists, and dictionaries to organize, sort, and search data • Design programs using functions and top-down design • Create complete-search algorithms and use Big O notation to design more efficient code By the end of the book, you’ll not only be proficient in Python, but you’ll also understand how to think through problems and tackle them with code. Programming languages come and go, but this book gives you the lasting foundation you need to start thinking like a programmer. SwiftUI is radically different from UIKit. So in this short book, we will help you build a mental model of how SwiftUI works. We explain the most important concepts in detail, and we follow them up with exercises to give you hands-on experience.SwiftUI is still a young framework, and as such, we don't believe it's appropriate to write a complete reference. Instead, this book focuses on transitioning your way of thinking from the object-oriented style of UIKit to the declarative style of SwiftUI.Thinking in SwiftUI is geared toward readers who are familiar with

Swift and who have experience building apps in frameworks like UIKit. A hands-on, problem-based introduction to building algorithms and data structures to solve problems with a computer. Algorithmic Thinking will teach you how to solve challenging programming problems and design your own algorithms. Daniel Zingaro, a master teacher, draws his examples from world-class programming competitions like USACO and IOI. You'll learn how to classify problems, choose data structures, and identify appropriate algorithms. You'll also learn how your choice of data structure, whether a hash table, heap, or tree, can affect runtime and speed up your algorithms; and how to adopt powerful strategies like recursion, dynamic programming, and binary search to solve challenging problems. Line-by-line breakdowns of the code will teach you how to use algorithms and data structures like: • The breadth-first search algorithm to find the optimal way to play a board game or find the best way to translate a book • Dijkstra's algorithm to determine how many mice can exit a maze or the number of fastest routes between two locations • The union-find data structure to answer questions about connections in a social network or determine who are friends or enemies • The heap data structure to determine the amount of money given away in a promotion • The hash-table data structure to determine whether snowflakes are unique or identify compound words in a dictionary NOTE: Each problem in this book is available on a programming-judge website. You'll find the site's URL and problem ID in the description. What's better than a free correctness check? Coding as a Playground, Second Edition is the first book to focus on how young children (ages 7 and under) can engage in computational thinking and be taught to become computer programmers, a process that can increase both their cognitive and social-emotional skills. Learn how coding can engage children as producers--and not merely consumers--of technology in a playful way. You will come away from this groundbreaking work with an understanding of how coding promotes developmentally appropriate experiences such as problem solving, imagination, cognitive challenges, social interactions, motor skills development, emotional exploration, and making different choices. Featuring all new case studies, vignettes and projects, as well as an expanded focus on teaching coding as a new literacy, this second edition helps you learn how to integrate coding into different curricular areas to promote literacy, math, science, engineering, and the arts through a project-based approach and a positive approach to learning. Provides link to sites where book in zip file can be downloaded. Looks at the principles and clean code, includes case studies showcasing the practices of writing clean code, and contains a list of heuristics and "smells" accumulated from the process of writing clean code. Widely considered one of the best practical guides to programming, Steve McConnell’s original CODE COMPLETE has been helping developers write better software for more than a decade. Now this classic book has been fully updated and revised with leading-edge practices—and hundreds of new code samples—illustrating the art and science of software construction. Capturing the body of knowledge available from research, academia, and everyday commercial practice, McConnell synthesizes the most effective techniques and must-know principles into clear, pragmatic guidance. No matter what your experience level, development environment, or project size, this book will inform and stimulate your thinking—and help you build the highest quality code. Discover the timeless techniques and strategies that help you: Design for minimum complexity and maximum creativity Reap the benefits of collaborative development Apply defensive programming techniques to reduce and flush out errors Exploit opportunities to refactor—or evolve—code, and do it safely Use construction practices that are right-weight for your project Debug problems quickly and effectively Resolve critical construction issues early and correctly Build quality into the beginning, middle, and end of your project NEW YORK TIMES BESTSELLER! Part how-to, part girl-empowerment, and all fun, from the leader of the movement championed by Sheryl Sandberg, Malala Yousafzai, and John Legend. Since 2012, the organization Girls Who Code has taught computing skills to and inspired over 40,000 girls across America. Now its founder, and author Brave Not Perfect, Reshma Saujani, wants to inspire you to be a girl who codes! Bursting with dynamic artwork, down-to-earth explanations of coding principles, and real-life stories of girls and women working at places like Pixar and NASA, this graphically animated book shows what a huge role computer science plays in our lives and how much fun it can be. No matter your interest—sports,

the arts, baking, student government, social justice—coding can help you do what you love and make your dreams come true. Whether you're a girl who's never coded before, a girl who codes, or a parent raising one, this entertaining book, printed in bold two-color and featuring art on every page, will have you itching to create your own apps, games, and robots to make the world a better place. Today's programmers are often narrowly trained because the industry moves too fast. That's where Write Great Code, Volume 1: Understanding the Machine comes in. This, the first of four volumes by author Randall Hyde, teaches important concepts of machine organization in a language-independent fashion, giving programmers what they need to know to write great code in any language, without the usual overhead of learning assembly language to master this topic. A solid foundation in software engineering, The Write Great Code series will help programmers make wiser choices with respect to programming statements and data types when writing software. If you are preparing the programming interview for a software engineer position, you might want to look at this book. Make sure you have basic knowledge of data structure and algorithm, because this book is mostly focus on how to resolve the coding puzzles with existing data structure and algorithm. If you need some refresh of data structure and algorithm, there is a good book you might want to take a look first, by Thomas H. Cormen. What the 2nd edition brings to you: 1.136 problems in Recursion, Divid and Conquer, Binary Search, Tree Traversal, Graph Traversal, Dynamic Programming, String Search etc, which is more than enough for preparing a software engineer interview. Every puzzle contains a detailed explanation and some implementations. 2.An Appendix in the end of this book for designing question preparation. This appendix includes some selected papers, books I had read in the past two years. And I think this is the most important change in the second edition. Learning what current industry does and keeping improving the design skill will help yourself in a long-term career. Again, this book is used to present how to analysis a problem and link the inside the challenge with some existing algrithoms. The goal of this book is to improve the problem solving ability, not to be a collection of latest interview questions from Facebook, Google etc. Hope this book can help you get your desired offer. In Learn Robotics with Raspberry Pi, you'll learn how to build and code your own robot projects with just the Raspberry Pi microcomputer and a few easy-to-get components - no prior experience necessary! Learn Robotics with Raspberry Pi will take you from inexperienced maker to robot builder. You'll start off building a two-wheeled robot powered by a Raspberry Pi minicomputer and then program it using Python, the world's most popular programming language. Gradually, you'll improve your robot by adding increasingly advanced functionality until it can follow lines, avoid obstacles, and even recognize objects of a certain size and color using computer vision. Learn how to: - Control your robot remotely using only a Wii remote - Teach your robot to use sensors to avoid obstacles - Program your robot to follow a line autonomously - Customize your robot with LEDs and speakers to make it light up and play sounds - See what your robot sees with a Pi Camera As you work through the book, you'll learn fundamental electronics skills like how to wire up parts, use resistors and regulators, and determine how much power your robot needs. By the end, you'll have learned the basics of coding in Python and know enough about working with hardware like LEDs, motors, and sensors to expand your creations beyond simple robots. Currently used at many colleges, universities, and high schools, this hands-on introduction to computer science is ideal for people with little or no programming experience. The goal of this concise book is not just to teach you Java, but to help you think like a computer scientist. You'll learn how to program—a useful skill by itself—but you'll also discover how to use programming as a means to an end. Authors Allen Downey and Chris Mayfield start with the most basic concepts and gradually move into topics that are more complex, such as recursion and object-oriented programming. Each brief chapter covers the material for one week of a college course and includes exercises to help you practice what you've learned. Learn one concept at a time: tackle complex topics in a series of small steps with examples Understand how to formulate problems, think creatively about solutions, and write programs clearly and accurately Determine which development techniques work best for you, and practice the important skill of debugging Learn relationships among input and output, decisions and loops, classes and methods, strings and arrays Work on exercises involving word games,

graphics, puzzles, and playing cards What if you are one sketch away from success? What if you are one connection away from a breakthrough? The Creativity Code provides the mold to pour your creativity into. How do the experts solve difficult problems in software development? In this unique and insightful book, leading computer scientists offer case studies that reveal how they found unusual, carefully designed solutions to high-profile projects. You will be able to look over the shoulder of major coding and design experts to see problems through their eyes. This is not simply another design patterns book, or another software engineering treatise on the right and wrong way to do things. The authors think aloud as they work through their project's architecture, the tradeoffs made in its construction, and when it was important to break rules. This book contains 33 chapters contributed by Brian Kernighan, KarlFogel, Jon Bentley, Tim Bray, Elliotte Rusty Harold, Michael Feathers,Alberto Savoia, Charles Petzold, Douglas Crockford, Henry S. Warren,Jr., Ashish Gulhati, Lincoln Stein, Jim Kent, Jack Dongarra and PiotrLuszczek, Adam Kolawa, Greg Kroah-Hartman, Diomidis Spinellis, AndrewKuchling, Travis E. Oliphant, Ronald Mak, Rogerio Atem de Carvalho andRafael Monnerat, Bryan Cantrill, Jeff Dean and Sanjay Ghemawat, SimonPeyton Jones, Kent Dybvig, William Otte and Douglas C. Schmidt, AndrewPatzer, Andreas Zeller, Yukihiro Matsumoto, Arun Mehta, TV Raman,Laura Wingerd and Christopher Seiwald, and Brian Hayes. Beautiful Code is an opportunity for master coders to tell their story. All author royalties will be donated to Amnesty International. If you understand basic mathematics and know how to program with Python, you’re ready to dive into signal processing. While most resources start with theory to teach this complex subject, this practical book introduces techniques by showing you how they’re applied in the real world. In the first chapter alone, you’ll be able to decompose a sound into its harmonics, modify the harmonics, and generate new sounds. Author Allen Downey explains techniques such as spectral decomposition, filtering, convolution, and the Fast Fourier Transform. This book also provides exercises and code examples to help you understand the material. You’ll explore: Periodic signals and their spectrums Harmonic structure of simple waveforms Chirps and other sounds whose spectrum changes over time Noise signals and natural sources of noise The autocorrelation function for estimating pitch The discrete cosine transform (DCT) for compression The Fast Fourier Transform for spectral analysis Relating operations in time to filters in the frequency domain Linear time-invariant (LTI) system theory Amplitude modulation (AM) used in radio Other books in this series include Think Stats and Think Bayes, also by Allen Downey.

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