Software Documentation Literate Programming

Strategies for building large systems that can be easily adapted for new situations with only minor programming modifications. Time pressures encourage programmers to write code that works well for a narrow purpose, with no room to grow. But the best systems are evolvable; they can be adapted for new situations by adding code, rather than changing the existing code. The authors describe techniques they have found effective--over their combined 100-plus years of programming experience--that will help programmers avoid programming themselves into corners. The authors explore ways to enhance flexibility by: • Organizing systems using combinators to compose mix-and-match parts, ranging from small functions to whole arithmetics, with standardized interfaces • Augmenting data with independent annotation layers, such as units of measurement or provenance • Combining independent pieces of partial information using unification or propagation • Separating control structure from problem domain with domain models, rule systems and pattern matching, propagation, and dependency-directed backtracking • Extending the programming language, using dynamically extensible evaluators

Use an Approach Inspired by Domain-Driven Design to Build Documentation That Evolves to Maximize Value Throughout Your Development Lifecycle Software documentation can come to life, stay dynamic, and actually help you build better software. Writing for developers, coding architects, and other software professionals, Living Documentation shows how to create documentation that evolves throughout your entire design and development lifecycle. Through patterns, clarifying illustrations, and concrete examples, Cyrille Martraire demonstrates how to use well-crafted artifacts and automation to dramatically improve the value of documentation at minimal extra cost. Whatever your domain, language, or technologies, you don ' t have to choose between working software and comprehensive, high-quality documentation: you can have both. · Extract and augment available knowledge, and make it useful through living curation · Automate the creation of documentation and diagrams that evolve as knowledge changes · Use development tools to refactor documentation · Leverage documentation to improve software designs · Introduce living documentation to new and legacy environments

A revolutionary approach to enhancing productivity, creating flow, and vastly increasing your ability to capture, remember, and benefit from the unprecedented amount of information all around us. For the first time in history, we have instantaneous access to the world ' s knowledge. There has never been a better time to learn, to contribute, and to improve ourselves. Yet, rather than feeling empowered, we are often left feeling overwhelmed by this constant influx of information. The very knowledge that was supposed to set us free has instead led to the paralyzing stress of believing we ' ll never know or remember enough. Now, this eye-opening and accessible guide shows how you can easily create your own personal system for knowledge management, otherwise known as a Second Brain. As a trusted and organized digital repository of your most valued ideas, notes, and creative work synced across all your devices and platforms, a Second Brain gives you the confidence to tackle your most important projects and ambitious goals. Discover the full potential of your ideas and translate what you know into more powerful, more meaningful improvements in your work and life by Building a Second Brain.

bookdown: Authoring Books and Technical Documents with R Markdown presents a much easier way to write books and technical publications than traditional tools such as LaTeX and Word. The bookdown package inherits the simplicity of syntax and flexibility for data analysis from R Markdown, and extends R Markdown for technical writing, so that you can make better use of document elements such as figures, tables, equations, theorems, citations, and references. Similar to LaTeX, you can number and cross-reference these elements with bookdown. Your document can even include live examples so readers can interact with them while reading the book. The book can be rendered to multiple output formats, including LaTeX/PDF, HTML, EPUB, and Word, thus making it easy to put your documents online. The style and theme of these output formats can be customized. We used books and R primarily for examples in this book, but bookdown is not only for books or R. Most features introduced in this book also apply to other types of publications: journal papers, reports, dissertations, course

handouts, study notes, and even novels. You do not have to use R, either. Other choices of computing languages include Python, C, C++, SQL, Bash, Stan, JavaScript, and so on, although R is best supported. You can also leave out computing, for example, to write a fiction. This book itself is an example of publishing with bookdown and R Markdown, and its source is fully available on GitHub.

Building a Second Brain

A RISC Computer for the Third Millennium

Living Documentation

5th International Conference, XP 2004, Garmisch-Partenkirchen, Germany, June 6-10, 2004, Proceedings

15th International Conference on Applications of Natural Language to Information Systems, NLDB 2010, Cardiff, UK, June 23-25, 2010, Proceedings

Extreme Programming and Agile Processes in Software Engineering

A tutorial for Perl programming and the particulars of Perl syntax, as well as good style and structure and maintainability of the code, also includes advanced concepts--such as modular programming, abstract datastructures, and object-oriented programming. Original. (Intermediate).

With the same insight and authority that made their book The Unix Programming Environment a classic, Brian Kernighan and Rob Pike have written The Practice of Programming to help make individual programmers more effective and productive. The practice of programming is more than just writing code. Programmers must also assess tradeoffs, choose among design alternatives, debug and test, improve performance, and maintain software written by themselves and others. At the same time, they must be concerned with issues like compatibility, robustness, and reliability, while meeting specifications. The Practice of Programming covers all these topics, and more. This book is full of practical advice and real-world examples in C, C++, Java, and a variety of special-purpose languages. It includes chapters on: debugging: finding bugs quickly and methodically testing: guaranteeing that software works correctly and reliably performance: making programs faster and more compact portability: ensuring that programs run everywhere without change design: balancing goals and constraints to decide which algorithms and data structures are best interfaces: using abstraction and information hiding to control the interactions between components style: writing code that works well and is a pleasure to read notation: choosing languages and tools that let the machine do more of the work Kernighan and Pike have distilled years of experience writing programs, teaching, and working with other programmers to create this book. Anyone who writes software will profit from the principles and guidance in The Practice of Programming .

"The second edition is clearer and adds more examples on how to use STL in a practical environment. Moreover, it is more concerned with performance and tools for its measurement. Both changes are very welcome." --Lawrence Rauchwerger, Texas A&M University "So many algorithms, so little time! The generic algorithms chapter with so many more examples than in the previous edition is delightful! The examples work cumulatively to give a sense of comfortable competence with the algorithms, containers, and iterators used." --Max A. Lebow, Software Engineer, Unisys Corporation The STL Tutorial and Reference Guide is highly acclaimed as the most accessible, comprehensive, and practical introduction to the Standard Template Library (STL). Encompassing a set of C++ generic data structures and

algorithms, STL provides reusable, interchangeable components adaptable to many different uses without sacrificing efficiency. Written by authors who have been instrumental in the creation and practical application of STL, STL Tutorial and Reference Guide, Second Edition includes a tutorial, a thorough description of each element of the library, numerous sample applications, and a comprehensive reference. You will find in-depth explanations of iterators, generic algorithms, containers, function objects, and much more. Several larger, non-trivial applications demonstrate how to put STL's power and flexibility to work. This book will also show you how to integrate STL with object-oriented programming techniques. In addition, the comprehensive and detailed STL reference guide will be a constant and convenient companion as you learn to work with the library. This second edition is fully updated to reflect all of the changes made to STL for the final ANSI/ISO C++ language standard. It has been expanded with new chapters and appendices. Many new code examples throughout the boo illustrate individual concepts and techniques, while larger sample programs demonstrate the use of the STL in real-world C++ software development. An accompanying Web site, including source code and examples referenced in the text, can be found at http://www.cs.rpi.edu/~musser/stl-book/index.html.

Software -- Programming Techniques.

A Retargetable C Compiler

From Theory to Implementation

Practical Software Requirements

The Practice of Writing Excellent Code

The Stanford GraphBase

The Definitive Guide

Version 3.0

Abstract: "We present an approach for designing a literate programming tool that, in addition to covering the technical issues, especially targets the acceptance of the documentation system by the program developer. We then describe the DOSFOP documentation system for the OPAL language, which was developed in line with these design principles. Finally, we discuss experiences with the system from a user's and from an implementor's point of view."

The book provides a clear understanding of what software reuse is, where the problems are, what benefits to expect, the activities, and its different forms. The reader is also given an overview of what sofware components are, different kinds of components and compositions, a taxonomy thereof, and examples of successful component reuse. An introduction to software engineering and software process models is also provided.

Use an Approach Inspired by Domain-Driven Design to Build Documentation That Evolves to Maximize Value Throughout Your Development Lifecycle Software documentation can come to life, stay dynamic, and actually help you build better software. Writing for developers, coding architects, and other software professionals, Living Documentation shows how to create documentation that evolves throughout your entire design and development lifecycle. Through patterns, clarifying illustrations, and concrete examples, Cyrille Martraire demonstrates how to use well-crafted artifacts and automation to dramatically improve the value of documentation at minimal extra cost. Whatever your domain, language, or technologies, you don't have to choose between working software and comprehensive, high-quality documentation: you can have both. · Extract and augment available knowledge, and make it useful through living curation · Automate the creation of documentation and diagrams that evolve as knowledge changes · Use development tools to refactor documentation · Leverage documentation to improve software designs · Introduce living documentation to new and legacy environments

This book constitutes the thoroughly refereed postconference proceedings of the 5th International Andrei Ershov Memorial Conference, PSI 2003, held in Akademgorodok, Novosibirsk, Russia in July 2003. The 55 revised full papers presented were carefully reviewed and selected from 110 submissions during two rounds of evaluation and improvement. The papers are organized in topical sections on programming, software engineering, software education, program synthesis and transformation, graphical interfaces, partial evaluation and supercompilation, verification, logic and types, concurrent and distributed systems, reactive systems, program specification, verification and model checking, constraint programming, documentation and testing, databases, and natural language processing.

C++ Programming with the Standard Template Library

5th International Andrei Ershov Memorial Conference, PSI 2003, Akademgorodok, Novosibirsk, Russia, July 9-12, 2003, Revised Papers

Conversations with the Creators of Major Programming Languages

A Proven Method to Organize Your Digital Life and Unlock Your Creative Potential

bookdown

Authoring Books and Technical Documents with R Markdown

Masterminds of Programming

MMIX is a RISC computer designed by Don Knuth to illustrate machine-level aspects of programming. In the author's book series "The Art of Computer Programming", MMIX replaces the 1960s-style machine MIX. A particular goal in the design of MMIX was to keep its machine language simple, elegant, and easy to learn. At the same time, all of the complexities needed to achieve high performance in practice are taken into account. This book constitutes a collection of programs written in CWEB that make MMIX a virtual reality. Among other utilities, an assembler converting MMIX symbolic files to MMIX objects and two simulators executing the programs in given object files are provided. The latest version of all programs can be downloaded from MMIX's home page. The book provides a complete documentation of the MMIX computer and its assembly language. It also presents mini-indexes, which make the programs much easier to understand. A corrected reprint of the book has been published in August 2014, replacing the version of 1999.

R Markdown: The Definitive Guide is the first official book authored by the core R Markdown developers that provides a comprehensive and accurate reference to the R Markdown ecosystem. With R Markdown, you can easily create reproducible data analysis reports, presentations, dashboards, interactive applications, books, dissertations, websites, and journal articles, while enjoying the simplicity of Markdown and the great power of R and other languages. In this book, you will learn Basics: Syntax of Markdown and R code chunks, how to generate figures and tables, and how to use other computing languages Built-in output formats of R Markdown: PDF/HTML/Word/RTF/Markdown documents and ioslides/Slidy/Beamer/PowerPoint presentations Extensions and applications: Dashboards, Tufte handouts, xaringan/reveal.js presentations, websites, books, journal articles, and interactive tutorials Advanced topics: Parameterized reports, HTML widgets, document templates, custom output formats, and Shiny documents. Yihui Xie is a software engineer at RStudio. He has authored and co-authored several R packages, including knitr, rmarkdown, bookdown, blogdown, shiny, xaringan, and animation. He has published three other books, Dynamic Documents with R and knitr, bookdown: Authoring Books and Technical Documents with R Markdown, and blogdown: Creating Websites with R Markdown. J.J. Allaire is the founder of RStudio and the creator of the RStudio IDE. He is an author of several packages in the R Markdown ecosystem including rmarkdown, flexdashboard, learnr, and radix. Garrett Grolemund is the co-author of R for Data Science and author of Hands-On Programming with R. He wrote the lubridate R package and works for RStudio as an advocate who trains engineers to do data science with R and the Tidyverse.

Demonstrates the programming language's strength as a Web development tool, covering syntax, data types, built-ins, the Python standard module library, and real world examples.

A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer

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

A Pragmatic Approach to Software Documentation

R Markdown

Lisp in Small Pieces

Literate Programming in WEB

The Pragmatic Programmer

TEX and METAFONT

Design and Implementation

An argument that we must read code for more than what it does—we must consider what it means. Computer source code has become part of popular discourse. Code is read not only by programmers but by lawyers, artists, pundits, reporters, political activists, and literary scholars; it is used in political debate, works of art, popular entertainment, and historical accounts. In this book, Mark Marino argues that code means more than merely what it does; we must also consider what it means. We need to learn to read code critically. Marino presents a series of case studies—ranging from the Climategate scandal to a hactivist art project on the US–Mexico border—as lessons in critical code reading. Marino shows how, in the process of its circulation, the meaning of code changes beyond its functional role to include connotations and implications, opening it up to interpretation and inference—and misinterpretation and reappropriation. The Climategate controversy, for example, stemmed from a misreading of a bit of placeholder code as a "smoking gun" that supposedly proved fabrication of climate data. A poetry generator created by Nick Montfort was remixed and reimagined by other poets, and subject to literary

interpretation. Each case study begins by presenting a small and self-contained passage of code—by coders as disparate as programming pioneer Grace Hopper and philosopher Friedrich Kittler—and an accessible explanation of its context and functioning. Marino then explores its extra-functional significance, demonstrating a variety of interpretive approaches.

The practice of literate programming is not widespread because existing literate programming systems have some undesirable characteristics such as programming language and text processor dependence and lack of flexible tools for viewing and manipulation of the source file. This dissertation describes the literate programming system AOPS (Abstraction Oriented Programming System) which addresses both of these problems. AOPS is programming language and text processor independent literate programming system. AOPS tools include a hypertext browser, a lister with the ability to select what is presented and what is suppressed, and a filter to extract the program code from the AOPS source file. AOPS introduces the notion of a phantom abstraction that enhances the understandability of the literate program and when used in conjunction with the browser greatly extends the capabilities of AOPS. We also discuss how the design of AOPS supports extension of the concept of literate programming to encompass the entire software life cycle. Finally we describe an experiment which showed that literate programs contain more documentation than traditional programs.

C Interfaces and Implementations describes how to use interface-based design in the C programming language, and it illustrates this approach by describing 24 interfaces and their implementations in detail. The source code in the book is interleaved with its explanation in an order that best suits understanding the code.

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning

models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Critical Code Studies

Techniques for Creating Reusable Software

Coders at Work

The CWEB System of Structured Documentation

Reflections on the Craft of Programming

How to Design Programs, second edition

Hypermedia Design

This book brings a unique treatment of compiler design to the professional who seeks an in-depth examination of a real-world compiler. Chris Fraser of &T Bell Laboratories and David Hanson of Princeton University codeveloped lcc, the retargetable ANSI C compiler that is the focus of this book. They provide complete source code for lcc; a target-independent front end and three target-dependent back ends are packaged as a single program designe run on three different platforms. Rather than transfer code into a text file, the book and the compiler itself are generated from a single source to ensure accuracy.

The Workshops in Computing series is the result of a collaborative venture between the British Computer Society and Springer-Verlag. It is internationa scope. Each volume is based on the proceedings of a specialist workshop and is designed to provide information that represents a 'snapshot' of curren knowledge, debate or research. Books in this series cover the broadest possible range of topics, subject only to the workshops being firmly established computing and being of interest to the wider community. To ensure timely publication, manuscripts are presented in the form in which they are submitte immediacy being regarded as more important than perfect typographical accuracy. Workshop organisers wishing to submit material for publication should, in the first instance, contact the Computing Editor at Springer-Verlag London Limited.

By following the techniques in this book, it is possible to write requirements and specifications that customers, testers, programmers and technical write will actually read, understand and use. These pages provide precise, practical instructions on how to distinguish requirements from design to produce e solutions.

Software development is being revolutionized. The heavy-weight processes of the 1980s and 1990s are being replaced by light-weight, so called agile processes. Agile processes move the focus of software development back to what really matters: running software. This is only made possible by acce that software developmentisacreativejobdoneby,with,andforindividualhumanbeings.For this reason, agile software development encourages interaction communication, and fun. This was the focus of the Fifth International Conference on Extreme P-grammingandAgileProcessesinSoftwareEngineeringwhichtookplacebetween June 6 and June 10, 2004 at the conference center in Garmisch-Partenkir at the foot of the Bavarian Alps near Munich, Germany. In this way the conference provided a unique forum for industry and academic professionals to discuss their needs and ideas for incorporating Extreme Programming and Agile Metho- logies into their professional life under consideration of the human factor. We celebrated this year’s conference by re?ecting on what we had achieved in the last half decade and we also focused on the challeng will face in the near future.

C Interfaces and Implementations
Elements of Programming with Perl
MMIXware
Code Complete
An Introduction to Programming and Computing
Code Craft
Software Engineering with Reusable Components

Most programmers' fear of user interface (UI) programming comes from their fear of doing UI design. They think that UI design is like graphic design—the mysterious process by which creative, latte-drinking, all-black-wearing people produce cool-looking, artistic pieces. Most programmers see themselves as analytic, logical thinkers instead—strong at reasoning, weak on artistic judgment, and incapable of doing UI design. In this brilliantly readable book, author Joel Spolsky proposes simple, logical rules that can be applied without any artistic talent to improve any user interface, from traditional GUI applications to websites to consumer electronics. Spolsky's primary axiom, the importance of bringing the program model in line with the user model, is both rational and simple. In a fun and entertaining way, Spolky makes user interface design easy for programmers to grasp. After reading User Interface Design for Programmers, you'll know how to design interfaces with the user in mind. You'll learn the important principles that underlie all good UI design, and you'll learn how to perform usability testing that works.

th The 15 International Conference on Applications of Natural Language to Information Systems (NLDB 2010) took place during June 23–25 in Cardiff (UK). Since the first edition in 1995, the NLDB conference has been aiming at bringing together resear- ers, people working in industry and potential users interested in various applications of natural language in the database and information system area. However, in order to reflect the growing importance of accessing information from a diverse collection of sources (Web, Databases, Sensors, Cloud) in an equally wide range of contexts (- cluding mobile and tethered), the theme of the 15th International Conference on - plications of Natural Language to Information Systems 2010 was "Communicating with Anything, Anywhere in Natural Language. " Natural languages and databases are core components in the development of inf- mation systems. Natural language processing (NLP) techniques may substantially enhance most phases of the information system lifecycle, starting with requirement analysis, specification and validation, and going up to conflict resolution, result pr- essing and presentation. Furthermore, natural language-based query languages and user interfaces facilitate the access to information for all and allow for new paradigms in the usage of computerized services. Hot topics such as information retrieval (IR), software engineering applications, hidden Markov models, natural language interfaces and semantic networks and graphs imply a complete fusion of databases, IR and NLP techniques.

Literate programming is a programming methodology that combines a programming language with a documentation language, making programs more easily maintained than programs written only in a high-level language. A literate programmer is an essayist who writes programs for humans to understand. When programs are written in the recommended style they can be transformed into documents by a document compiler and into efficient code by an algebraic compiler. This anthology of essays includes Knuth's early papers on related topics such as structured programming as well as the Computer Journal article that launched literate programming. Many examples are given, including excerpts from the programs for TeX and METAFONT. The final essay is an example of CWEB, a system for literate

programming in C and related languages. Index included.
A guide to writing computer code covers such topics as variable naming, presentation style, error handling, and security.
Proceedings of the International Workshop on Hypermedia Design (IWHD'95), Montpellier, France, 1–2 June 1995
How to Avoid Programming Yourself into a Corner
Weaving a Program
Python in a Nutshell
Object-oriented Software Construction
AOPS
STL Tutorial and Reference Guide

Abstract: "Conceptually, literate programming systems are document preparation systems that are augmented with features for writing software. We introduce here a what-you-see-is-what-you-get literate programming system."

As developers know, the beauty of XML is that it is extensible, even to the point that you can invent new elements and attributes as you write XML documents. Then, however, you need to define your changes so that applications will be able to make sense of them and this is where XML schema languages come into play. RELAX NG (pronounced relaxing), the Regular Language Description for XML Core--New Generation is quickly gaining momentum as an alternative to other schema languages. Designed to solve a variety of common problems raised in the creation and sharing of XML vocabularies, RELAX NG is less complex than The W3C's XML Schema Recommendation and much more powerful and flexible than DTDs. RELAX NG is a grammar-based schema language that's both easy to learn for schema creators and easy to implement for software developers In RELAX NG, developers are introduced to this unique language and will learn a no-nonsense method for creating XML schemas. This book offers a clear-cut explanation of RELAX NG that enables intermediate and advanced XML developers to focus on XML document structures and content rather than battle the intricacies of yet another convoluted standard. RELAX NG covers the following topics in depth: Introduction to RELAX NG Building RELAX NG schemas using XML syntax Building RELAX NG schemas using compact syntax, an alternative non-XML syntax Flattening schemas to limit depth and provide reusability Using external datatype libraries with RELAX NG W3C XML Schema regular expressions Writing extensible schemas Annotating schemas Generating schemas form different sources Determinism and datatype assignment and much more. If you're looking for a schema language that's easy to use and won't leave you in a labyrinth of obscure limitations, RELAX NG is the language you should be using. And only O'Reilly's RELAX NG gives you the straightforward information and everything else you'll need to take advantage of this powerful and intelligible language.

This book describes Knuth's WEB system, a language designed to produce the best possible documentation for computer programs. Specifically, it describes a version of WEB adapted to the C Programming language by Silvio Levy, combining Knuth's other creation TEX language. This title: explains what CWEB is and shows how to use it; facilitates a style of programming that will maximize the ability to perceive the structure of complex software; and mechanically translates documented programs into a working system that matches the documentation.

This updated edition describes both the mathematical theory behind a modern photorealistic rendering system as well as its practical implementation. Through the ideas and software in this book, designers will learn to design and employ a full-featured rendering system for creating stunning imagery. Includes a companion site complete with source code for the rendering system described in the book, with support for Windows, OS X, and Linux.

An Abstraction Oriented Programming System for Literate Programming
A Wysiwyg Literate Programming System

Literate Programming
Continuous Knowledge Sharing by Design
Software Design for Flexibility
New Directions in Typesetting
RELAX NG
Literate ProgrammingStanford Univ Center for the Study
Software -- Software Engineering.

The Stanford GraphBase: A Platform for Combinatorial Computing represents the first efforts of Donald E. Knuth's preparation for Volume Four of The Art of Computer Programming. The book's first goal is to use examples to demonstrate the art of literate programming. Each example provides a programmatic essay that can be read and enjoyed as readily as it can be interpreted by machines. In these essays/programs, Knuth makes new contributions to several important algorithms and data structures, so the programs are of special interest for their content as well as for their style. The book's second goal is to provide a useful means for comparing combinatorial algorithms and for evaluating methods of combinatorial computing. To this end, Knuth's programs offer standard, freely available sets of data - the Stanford GraphBase - that may be used as benchmarks to test competing methods. The data sets are both interesting in themselves and applicable to a wide variety of problem domains. With objective tests, Knuth hopes to bridge the gap between theoretical computer scientists and programmers who have real problems to solve. As with all of Knuth's writings, this book is appreciated not only for the author's unmatched insight, but also for the fun and the challenge of his work. He illustrates many of the most significant and most beautiful combinatorial algorithms that are presently known and provides sample programs that can lead to hours of amusement. In showing how the Stanford GraphBase can generate an almost inexhaustible supply of challenging problems, some of which may lead to the discovery of new and improved algorithms, Knuth proposes friendly competitions. His own initial entries into such competitions are included in the book, and readers are challenged to do better. Features Includes new contributions to our understanding of important algorithms and data structures Provides a standard tool for evaluating combinatorial algorithms Demonstrates a more readable, more practical style of programming Challenges readers to surpass his own efficient algorithms 0201542757B04062001

This will become the new standard reference for people wanting to know about the Lisp family of languages.

From Journeyman to Master
Deep Learning for Coders with fastai and PyTorch
A Platform for Combinatorial Computing
A Manual of Content and Style
User Interface Design for Programmers
Natural Language Processing and Information Systems
The Practice of Programming

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

Masterminds of Programming features exclusive interviews with the creators of several historic and highly influential programming languages. In this unique collection, you'll learn about the processes that led to specific design decisions, including the goals they had in mind, the trade-offs they had to make, and how their experiences have left an impact on programming today. Masterminds of Programming includes individual interviews with: Adin D. Falkoff: APL Thomas E. Kurtz: BASIC Charles H. Moore: FORTH Robin Milner: ML Donald D. Chamberlin: SQL Alfred Aho, Peter Weinberger, and Brian Kernighan: AWK Charles Geschke and John Warnock: PostScript Bjarne Stroustrup: C++ Bertrand Meyer: Eiffel Brad Cox and Tom Love: Objective-C Larry Wall: Perl Simon Peyton Jones, Paul Hudak, Philip Wadler, and John Hughes: Haskell Guido van Rossum: Python Luiz Henrique de Figueiredo and Roberto Ierusalimschy: Lua James Gosling: Java Grady Booch, Ivar Jacobson, and James Rumbaugh: UML Anders Hejlsberg: Delphi inventor and lead developer of C# If you're interested in the people whose vision and hard work helped shape the computer industry, you'll find Masterminds of Programming fascinating.

Peter Seibel interviews 15 of the most interesting computer programmers alive today in Coders at Work, offering a companion volume to Apress's highly acclaimed best-seller Founders at Work by Jessica Livingston. As the words "at work" suggest, Peter Seibel focuses on how his interviewees tackle the day-to-day work of programming, while revealing much more, like how they became great programmers, how they recognize programming talent in others, and what kinds of problems they find most interesting. Hundreds of people have suggested names of programmers to interview on the Coders at Work web site: www.codersatwork.com. The complete list was 284 names. Having digested everyone's feedback, we selected 15 folks who've been kind enough to agree to be interviewed: Frances Allen: Pioneer in optimizing compilers, first woman to win the Turing Award (2006) and first female IBM fellow Joe Armstrong: Inventor of Erlang Joshua Bloch: Author of the Java collections framework, now at Google Bernie Cosell: One of the main software guys behind the original ARPANET IMPs and a master debugger Douglas Crockford: JSON founder, JavaScript architect at Yahoo! L. Peter Deutsch: Author of Ghostscript, implementer of Smalltalk-80 at Xerox PARC and Lisp 1.5 on PDP-1 Brendan Eich: Inventor of JavaScript, CTO of the Mozilla Corporation Brad Fitzpatrick: Writer of LiveJournal, OpenID, memcached, and Perlbal Dan Ingalls: Smalltalk implementor and designer Simon Peyton Jones: Coinventor of Haskell and lead designer of Glasgow Haskell Compiler Donald Knuth: Author of The Art of Computer Programming and creator of TeX Peter Norvig: Director of Research at Google and author of the standard text on AI Guy Steele: Coinventor of Scheme and

part of the Common Lisp Gang of Five, currently working on Fortress Ken Thompson: Inventor of UNIX Jamie Zawinski: Author of XEmacs and early Netscape/Mozilla hacker

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.

Perspectives of Systems Informatics

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