

Software Estimation The Black Art Demystified

Deliver bug-free software projects on schedule and within budget Get a clear, complete understanding of how to estimate software costs, schedules, and quality using the real-world information contained in this comprehensive volume. Find out how to choose the correct hardware and software tools, develop an appraisal strategy, deploy tests and prototypes, and produce accurate software cost estimates. Plus, you'll get full coverage of cutting-edge estimating approaches using Java, object-oriented methods, and reusable components. Plan for and execute project-, phase-, and activity-level cost estimations Estimate regression, component, integration, and stress tests Compensate for inaccuracies in data collection, calculation, and analysis Assess software deliverables and data complexity Test design principles and operational characteristics using software prototyping Handle configuration change, research, quality control, and documentation costs "Capers Jones' work offers a unique contribution to the understanding of the economics of software production. It provides deep insights into why our advances in computing are not matched with corresponding improvements in the software that drives it. This book is absolutely required reading for an understanding of the limitations of our technological advances." –Paul A. Strassmann, former CIO of Xerox, the Department of Defense, and NASA

Zero in on key project-initiation tasks—and build a solid foundation for successful software development. In this concise guide, critically-acclaimed author Karl E. Wieggers fills a void in project management literature by focusing on the activities that are essential—but often overlooked—for launching any project. Drawing on his extensive experience, Karl shares lessons learned, proven practices, and tools for getting your project off to the right start—and steering it to ultimate success. Lay a foundation for project success—discover how to: Effectively charter a project Define meaningful criteria for project success and product releases Negotiate achievable commitments for project teams and stakeholders Identify and document potential barriers to success—and manage project risks Apply the Wideband Delphi method for more accurate estimation Measure project performance and avoid common metrics traps Systematically apply lessons learned to future projects

Companion Web site includes: Worksheets from inside the book Project document templates Resources for project initiation and process improvement

The Book of R is a comprehensive, beginner-friendly guide to R, the world's most popular programming language for statistical analysis. Even if you have no programming experience and little more than a grounding in the basics of mathematics, you'll find everything you need to begin using R effectively for statistical analysis. You'll start with the basics, like how to handle data and write simple programs, before moving on to more advanced topics, like producing statistical summaries of your data and performing statistical tests and modeling. You'll even learn how to create impressive data visualizations with R's basic graphics tools and contributed packages, like ggplot2 and ggvis, as well as interactive 3D visualizations using the rgl package. Dozens of hands-on exercises (with downloadable solutions) take you from theory to practice, as you learn: –The fundamentals of programming in R, including how to write data frames, create functions, and use variables, statements, and loops –Statistical concepts like exploratory data analysis, probabilities, hypothesis tests, and regression modeling, and how to execute them in R –How to access R's thousands of functions, libraries, and data sets –How to draw valid and useful conclusions from your data –How to create publication-quality graphics of your results Combining detailed explanations with real-world examples and exercises, this book will provide you with a solid understanding of both statistics and the depth of R's functionality. Make The Book of R your doorway into the growing world of data analysis.

"If you're looking for solid, easy-to-follow advice on estimation, requirements gathering, managing change, and more, you can stop now: this is the book for you." –Scott Berkun, Author of The Art of Project Management What makes software projects succeed? It takes more than a good idea and a team of talented programmers. A project manager needs to know how to guide the team through the entire software project. There are common pitfalls that plague all software projects and rookie mistakes that are made repeatedly—sometimes by the same people! Avoiding these pitfalls is not hard, but it is not necessarily intuitive. Luckily, there are tried and true techniques that can help any project manager. In Applied Software Project Management, Andrew Stellman and Jennifer Greene provide you with tools, techniques, and practices that you can use on your own projects right away. This book supplies you with the information you need to diagnose your team's situation and presents practical advice to help you achieve your goal of building better software. Topics include: Planning a software project Helping a team estimate its workload Building a schedule Gathering software requirements and creating use cases Improving programming with refactoring, unit testing, and version control Managing an outsourced project Testing software Jennifer Greene and Andrew Stellman have been building software together since 1998. Andrew comes from a programming background and has managed teams of requirements analysts, designers, and developers. Jennifer has a testing background and has managed teams of architects, developers, and testers. She has led multiple large-scale outsourced projects. Between the two of them, they have managed every aspect of software development. They have worked in a wide range of industries, including finance, telecommunications, media, nonprofit, entertainment, natural-language processing, science, and academia. For more information about them and this book, visit stellman-greene.com

Taming Wild Software Schedules

Shorter Schedules, Higher Quality Products, More Successful Projects, Enhanced Careers

The Economics of Software Quality

Professional Software Development

Practical Project Initiation

Safe 5.0 Distilled: Achieving Business Agility with the Scaled Agile Framework

Agile Estimating and Planning

Often referred to as the "black art" because of its complexity and uncertainty, software estimation is not as difficult or puzzling as people think. In fact, generating accurate estimates is straightforward—once you understand the art of creating them. In his highly anticipated book, acclaimed author Steve McConnell unravels the mystery to successful software estimation—distilling academic information and real-world experience into a practical guide for working software professionals. Instead of arcane treatises and rigid modeling techniques, this guide highlights a proven set of procedures, understandable formulas, and heuristics that individuals and development teams can apply to their projects to help achieve estimation proficiency. Discover how to: Estimate schedule and cost—or estimate the functionality that can be delivered within a given time frame Avoid common software estimation mistakes Learn estimation techniques for you, your team, and your organization * Estimate specific project activities—including development, management, and defect correction Apply estimation approaches to any type of project—small or large, agile or traditional Navigate the shark-infested political waters that surround project estimates When many corporate software projects are failing, McConnell shows you what works for successful software estimation.

Create rich experiences for users of Windows 7 and Windows 8 Developer Preview with this pragmatic guide to the Kinect for Windows Software Development Kit (SDK). The author, a developer evangelist for Microsoft, walks you through Kinect sensor technology and the SDK—providing hands-on insights for how to add gesture and posture recognition to your apps. If you're skilled in C# and Windows Presentation Foundation, you'll learn how to integrate Kinect in your applications and begin writing Uis and controls that can handle Kinect interaction. This book introduces the Kinect for Windows Software Development Kit to developers looking to enrich applications they build for Windows 7 and later with human motion tracking Teaches developers with core C# and WPF skills how to program gesture and posture recognition in Kinect Describes how to integrate 3D representation on top of a real scene Provides expert insights and code samples to get you up and running

Agile Estimating and Planning is the definitive, practical guide to estimating and planning agile projects. In this book, Agile Alliance cofounder Mike Cohn discusses the philosophy of agile estimating and planning and shows you exactly how to get the job done, with real-world examples and case studies. Concepts are clearly illustrated and readers are guided, step by step, toward how to answer the following questions: What will we build? How big will it be? When must it be done? How much can I really complete by then? You will first learn what makes a good plan—and then what makes it agile. Using the techniques in Agile Estimating and Planning , you can stay agile from start to finish, saving time, conserving resources, and accomplishing more. Highlights include: Why conventional prescriptive planning fails and why agile planning works How to estimate feature size using story points and ideal days—and when to use each How and when to re-estimate How to prioritize features using both financial and nonfinancial approaches How to split large features into smaller, more manageable ones How to plan iterations and predict your team's initial rate of progress How to schedule projects that have unusually high uncertainty or schedule-related risk How to estimate projects that will be worked on by multiple teams Agile Estimating and Planning supports any agile, semiagile, or iterative process, including Scrum, XP, Feature-Driven Development, Crystal, Adaptive Software Development, DSDM, Unified Process, and many more. It will be an indispensable resource for every development manager, team leader, and team member.

Learn algorithms for solving classic computer science problems with this concise guide covering everything from fundamental algorithms, such as sorting and searching, to modern algorithms used in machine learning and cryptography Key FeaturesLearn the techniques you need to know to design algorithms for solving complex problemsBecome familiar with neural networks and deep learning techniquesExplore different types of algorithms and choose the right data structures for their optimal implementationBook Description Algorithms have always played an important role in both the science and practice of computing. Beyond traditional computing, the ability to use algorithms to solve real-world problems is an important skill that any developer or programmer must have. This book will help you not only to develop the skills to select and use an algorithm to solve real-world problems but also to understand how it works. You'll start with an introduction to algorithms and discover various algorithm design techniques, before exploring how to implement different types of algorithms, such as searching and sorting, with the help of practical examples. As you advance to a more complex set of algorithms, you'll learn about linear programming, page ranking, and graphs, and even work with machine learning algorithms, understanding the math and logic behind them. Further on, case studies such as weather prediction, tweet clustering, and movie recommendation engines will show you how to apply these algorithms optimally. Finally, you'll become well versed in techniques that enable parallel processing, giving you the ability to use these algorithms for compute-intensive tasks. By the end of this book, you'll have become adept at solving real-world computational problems by using a wide range of algorithms. What you will learnExplore existing data structures and algorithms found in Python librariesImplement graph algorithms for fraud detection using network analysisWork with machine learning algorithms to cluster similar tweets and process Twitter data in real timePredict the weather using supervised learning algorithmsUse neural networks for object detectionCreate a recommendation engine that suggests relevant movies to subscribersImplement foolproof security using symmetric and asymmetric encryption on Google Cloud Platform (GCP)Who this book is for This book is for programmers or developers who want to understand the use of algorithms for problem-solving and writing efficient code. Whether you are a beginner looking to learn the most commonly used algorithms in a clear and concise way or an experienced programmer looking to explore cutting-edge algorithms in data science, machine learning, and cryptography, you'll find this book useful. Although Python programming experience is a must, knowledge of data science will be helpful but not necessary.

Software Estimation Best Practices, Tools & Techniques

Software Estimation Without Guessing

Demystifying the Black Art

Coder to Developer

Software Requirements

The Productive Programmer

Architecture as Strategy

Estimating software development often produces more angst than value, but it doesn't have to. Identify the needs behind estimate requests and determine how to meet those needs simply and easily. Choose estimation techniques based on current needs and available information, gaining benefit while reducing cost and effort. Detect bad assumptions that might sink your project if you don't adjust your plans. Discover what to do when an estimate is wrong, how to recover, and how to use that knowledge for future planning. Learn to communicate about estimates in a healthy and productive way, maximizing advantage to the organization and minimizing damage to the people. In a world where most developers hate estimation and most managers fear disappointment with the results, there is hope for both. It requires giving up some widely held misconceptions. Let go of the notion that "an estimate is an estimate" and estimate for the particular need you, and your organization, have. Realize that estimates have a limited shelf-life, and reestimate frequently if it's important. When reality differs from your estimate, don't lament; mine that disappointment for the gold that can be the longer-term jackpot. Estimate in comparison to past experience, by modeling the work mathematically, or a hybrid of both. Learn strategies for effective decomposition of work and aspects of the work that likely affect your estimates. Hedge your bets by comparing the results of different approaches. Find out what to do when an estimate proves wrong. And they will. They're estimates, after all. You'll discover that you can use estimates to warn you of danger so you can take appropriate action in time. Learn some crucial techniques to understand and communicate with those who need to understand. Address both the technical and sociological aspects of estimation, and you'll help your organization achieve its desired goals with less drama and more benefit. What You Need: No software needed, just your past experience and concern for the outcomes.

Software legend Capers Jones reveals the tight links between software quality, ROI, and TCO, and help you optimize all three ••Strong empirical evidence that high quality generates strongly positive ROI and reduced TCO. •Practical ways to prevent defects, and remove them in pre-test, test, and postrelease. •Easy checklists for assessing and improving practice, plus insights into the costs/benefits of intervention. •By renowned software consultant Capers Jones. In this book, world-renowned software management expert Capers Jones and software quality guru Jitendra Subramanyam help development leaders and practitioners quantify and optimize the economic impact of quality throughout the software lifecycle - and then choose the highest value interventions to improve it. The authors introduce powerful empirical and field data on the ability of inspection, static analysis, and test methods to reduce up to 95% of defects, and discuss the business value of improvements of this magnitude. The Economics of Software Quality is based on proven best quality practices in IT departments and at world-leading integrators, embedded software companies, and systems software groups. Jones and Curtis bring together crucial new information on: • Identifying and fixing the root causes of short- and long-term software cost inefficiencies. •Predicting and measuring software defects and their quality impacts. •Assessing current practices and identifying the best interventions. •Calculating the ROI of quality during development and maintenance. •Comparing and choosing methods of defect prevention. •Selecting methods of defect removal, such as inspections and static analysis. •Understanding and evaluating more than 20 kinds of software testing. •Best practices for postrelease defect reporting and repair. •Recognizing 'hazardous' metrics and their problems

"Two thumbs up" —Gregory V. Wilson, Dr. Dobbs Journal (October 2004) No one can disparage the ability to write good code. At its highest levels, it is an art. But no one can confuse writing good code with developing good software. The difference—in terms of challenges, skills, and compensation—is immense. Coder to Developer helps you excel at the many non-coding tasks entailed, from start to finish, in just about any successful development project. What's more, it equips you with the mindset and self-assurance required to pull it all together, so that you see every piece of your work as part of a coherent process. Inside, you'll find plenty of technical guidance on such topics as: Choosing and using a source code control system Code generation tools—when and why Preventing bugs with unit testing Tracking, fixing, and learning from bugs Application activity logging Streamlining and systematizing the build process Traditional installations and alternative approaches To pull all of this together, the author has provided the source code for Download Tracker, a tool for organizing your collection of downloaded code, that's used for examples throughout this book. The code is provided in various states of completion, reflecting every stage of development, so that you can dig deep into the actual process of building software. But you'll also develop "softer" skills, in areas such as team management, open source collaboration, user and developer documentation, and intellectual property protection. If you want to become someone who can deliver not just good code but also a good product, this book is the placeto start. If you must build successful software projects, it's essential reading.

Managing people is difficult wherever you work. But in the tech industry, where management is also a technical discipline, the learning curve can be brutal—especially when there are few tools, texts, and frameworks to help you. In this practical guide, author Camille Fournier (tech lead turned CTO) takes you through each stage in the journey from engineer to technical manager. From mentoring interns to working with senior staff, you'll get actionable advice for approaching various obstacles in your path. This book is ideal whether you're a new manager, a mentor, or a more experienced leader looking for fresh advice. Pick up this book and learn how to become a better manager and leader in your organization. Begin by exploring what you expect from a manager Understand what it takes to be a good mentor, and a good tech lead Learn how to manage individual members while remaining focused on the entire team Understand how to manage yourself and avoid common pitfalls that challenge many leaders Manage multiple teams and learn how to manage managers Learn how to build and bootstrap a unifying culture in teams

The Book of R

A Lexicon

Proceedings of KKA 2017—The 19th Polish Control Conference, Kraków, Poland, June 18–21, 2017

Software Project Survival Guide

The Manager's Path

A Guide for Tech Leaders Navigating Growth and Change

#NoEstimates

The Robert C. Martin Clean Code Collection consists of two bestselling eBooks: Clean Code: A Handbook of Agile Software Craftmanship The Clean Coder: A Code of Conduct for Professional Programmers In Clean Code, legendary software expert Robert C. Martin has teamed up with his colleagues from Object Mentor to distill their best agile practice of cleaning code "on the fly" into a book that will instill within you the values of a software craftsman and make you a better programmer—but only if you work at it. You will be challenged to think about what's right about that code and what's wrong with it. More important, you will be challenged to reassess your professional values and your commitment to your craft. In The Clean Coder, Martin introduces the disciplines, techniques, tools, and practices of true software craftsmanship. This book is packed with practical advice—about everything from estimating and coding to refactoring and testing. It covers much more than technique: It is about attitude. Martin shows how to approach software development with honor, self-respect, and pride; work well and work clean; communicate and estimate faithfully; face difficult decisions with clarity and honesty; and understand that deep knowledge comes with a responsibility to act. Readers of this collection will come away understanding How to tell the difference between good and bad code How to write good code and how to transform bad code into good code How to create good names, good functions, good objects, and good classes How to format code for maximum readability How to implement complete error handling without obscuring code logic How to unit test and practice test-driven development What it means to behave as a true software craftsman How to deal with conflict, tight schedules, and unreasonable managers How to get into the flow of coding and get past writer's block How to handle unrelenting pressure and avoid burnout How to combine enduring attitudes with new development paradigms How to manage your time and avoid blind alleys, marshes, bogs, and swamps How to foster environments where programmers and teams can thrive When to say "No"—and how to say it When to say "Yes"—and what yes really means

Software Estimation Demystifying the Black Art Microsoft Press

Controlling Software Projects shows managers how to organize software projects so they are objectively measurable, and prescribes techniques for making early and accurate projections of time and cost to deliver.

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.

*How to Get Prepared for Managing a Remote Team
A Complete Guide for Software Project Estimators
Best Practices for Large Enterprises
Software Studies
Tools and Strategies for Delivering Your Software
Implementing Domain-driven Design
How to Measure Project Progress Without Estimating*

Looks at a successful software project and provides details for software development for clients using object-oriented design and programming.

Printed in full color. Faced with a software project of epic proportions? Tired of over-committing and under-delivering? Enter the dojo of the agile samurai, where agile expert Jonathan Rasmusson shows you how to kick-start, execute, and deliver your agile projects. Combining cutting-edge tools with classic agile practices, The Agile Samurai gives you everything you need to deliver something of value every week and make rolling your software into production a non-event. Get ready to kick some software project butt. By learning the ways of the agile samurai you will discover: how to create plans and schedules your customer and your team can believe in what characteristics make a good agile team and how to form your own how to gather requirements in a fraction of the time using agile user stories what to do when you discover your schedule is wrong, and how to look like a pro correcting it how to execute fiercely by leveraging the power of agile software engineering practices By the end of this book you will know everything you need to set up, execute, and successfully deliver agile projects, and have fun along the way. If you're a project lead, this book gives you the tools to set up and lead your agile project from start to finish. If you are an analyst, programmer, tester, usability designer, or project manager, this book gives you the insight and foundation necessary to become a valuable agile team member. The Agile Samurai slices away the fluff and theory that make other books less-than-agile. It's packed with best practices, war stories, plenty of humor and hands-on tutorial exercises that will get you doing the right things, the right way. This book will make a difference.

Vaughn Vernon presents concrete and realistic domain-driven design (DDD) techniques through examples from familiar domains, such as a Scrum-based project management application that integrates with a collaboration suite and security provider. Each principle is backed up by realistic Java examples, and all content is tied together by a single case study of a company charged with delivering a set of advanced software systems with DDD.

Corporate and commercial software-development teams all want solutions for one important problem—how to get their high-pressure development schedules under control. In RAPID DEVELOPMENT, author Steve McConnell addresses that concern head-on with overall strategies, specific best practices, and valuable tips that help shrink and control development schedules and keep projects moving. Inside, you'll find: A rapid-development strategy that can be applied to any project and the best practices to make that strategy work Candid discussions of great and not-so-great rapid-development practices—estimation, prototyping, forced overtime, motivation, teamwork, rapid-development languages, risk management, and many others A list of classic mistakes to avoid for rapid-development projects, including creeping requirements, shortchanged quality, and silver-bullet syndrome Case studies that vividly illustrate what can go wrong, what can go right, and how to tell which direction your project is going RAPID DEVELOPMENT is the real-world guide to more efficient applications development.

Management, Measurement & Estimation

Waltzing with Bears

your journey to mastery, 20th Anniversary Edition

Introduction to the New Statistics

Technology Strategy Patterns

Applied Software Project Management

Agile coding with design patterns and SOLID principles

Technologists who want their ideas heard, understood, and funded are often told to speak the language of business—without really knowing what that is. This book's toolkit provides architects, product managers, technology managers, and executives with a shared language—in the form of repeatable, practical patterns and templates—to produce great technology strategies. Author Eben Hewitt developed 39 patterns over the course of a decade in his work as CTO, CIO, and chief architect for several global tech companies. With these proven tools, you can define, create, elaborate, refine, and communicate your architecture goals, plans, and approach in a way that executives can readily understand, approve, and execute. This book covers: Architecture and strategy: Adopt a strategic architectural mindset to make a meaningful material impact Creating your strategy: Define the components of your technology strategy using proven patterns Communicating the strategy: Convey your technology strategy in a compelling way to a variety of audiences Bringing it all together: Employ patterns individually or in clusters for specific problems; use the complete framework for a comprehensive strategy

In this comprehensive yet accessible overview for software leaders, the author presents an impactful, action-oriented prescription-covering the practical considerations needed to ensure you reap the full benefits of effective Agile

This collection of short expository, critical and speculative texts offers a field guide to the cultural, political, social and aesthetic impact of software. Experts from a range of disciplines each take a key topic in software and the understanding of software, such as algorithms and logical structures.

bull; Renowned software expert Steve McConnell presents his latest thoughts on the condition of the software engineering profession bull; Helps software developers regain the sight of the big-picture reasons why their jobs matter bull; A thinking man's guide to the current state of software

Trends in Advanced Intelligent Control, Optimization and Automation

Code Complete

A First Course in Programming and Statistics

The Pragmatic Programmer

Software Estimation

Software Cost Estimation, Benchmarking, and Risk Assessment

40 Algorithms Every Programmer Should Know

“Companies have been implementing large agile projects for a number of years, but the ‘stigma’ of ‘agile only works for small projects’ continues to be a frequent barrier for newcomers and a rallying cry for agile critics. What has been missing from the agile literature is a solid, practical book on the specifics of developing large projects in an agile way. Dean Leffingwell’s book Scaling Software Agility fills this gap admirably. It offers a practical guide to large project issues such as architecture, requirements development, multi-level release planning, and team organization.

Leffingwell’s book is a necessary guide for large projects and large organizations making the transition to agile development.”—Jim Highsmith, director, Agile Practice, Cutter Consortium, author of Agile Project Management “There’s tension between building software fast and delivering software that lasts, between being ultra-responsive to changes in the market and maintaining a degree of stability. In his latest work, Scaling Software Agility, Dean Leffingwell shows how to achieve a pragmatic balance among these forces. Leffingwell’s observations of the problem, his advice on the solution, and his description of the resulting best practices come from experience: he’s been there, done that, and has seen what’s worked.”—Grady Booch, IBM Fellow Agile development practices, while still controversial in some circles, offer undeniable benefits: faster time to market, better responsiveness to changing customer requirements, and higher quality. However, agile practices have been defined and recommended primarily to small teams. In Scaling Software Agility, Dean Leffingwell describes how agile methods can be applied to enterprise-class development. Part I provides an overview of the most common and effective agile methods. Part II describes seven best practices of agility that natively scale to the enterprise level. Part III describes an additional set of seven organizational capabilities that companies can master to achieve the full benefits of software agility on an enterprise scale. This book is invaluable to software developers, testers and QA personnel, managers and team leads, as well as to executives of software organizations whose objective is to increase the quality and productivity of the software development process but who are faced with all the challenges of developing software on an enterprise scale.

Software effort estimation is a key element of software project planning and management. Yet, in industrial practice, the important role of effort estimation is often underestimated and/or misunderstood. In this book, Adam Trendowicz presents the CoBRA method (an abbreviation for Cost Estimation, Benchmarking, and Risk Assessment) for estimating the effort required to successfully complete a software development project, which uniquely combines human judgment and measurement data in order to systematically create a custom-specific effort estimation model. CoBRA goes far beyond simply predicting the development effort; it supports project decision-makers in negotiating the project scope, managing project risks, benchmarking productivity, and directing improvement activities. To illustrate the method’s practical use, the book reports several real-world cases where CoBRA was applied in various industrial contexts. These cases represent different estimation contexts in terms of software project environment, estimation objectives, and estimation constraints. This book is the result of a successful collaboration between the process management division of Fraunhofer IESE and many software companies in the field of software engineering technology transfer. It mainly addresses software practitioners who deal with planning and managing software development projects as part of their daily work, and is also of interest for students or courses specializing in software engineering or software project management.

For those considering Extreme Programming, this book provides no-nonsense advice on agile planning, development, delivery, and management taken from the authors’ many years of experience. While plenty of books address the what and why of agile development, very few offer the information users can apply directly.

This volume contains the proceedings of the KKA 2017 – the 19th Polish Control Conference, organized by the Department of Automatics and Biomedical Engineering, AGH University of Science and Technology in Kraków, Poland on June 18–21, 2017, under the auspices of the Committee on Automatic Control and Robotics of the Polish Academy of Sciences, and the Commission for Engineering Sciences of the Polish Academy of Arts and Sciences. Part 1 deals with general issues of modeling and control, notably flow modeling and control, sliding mode, predictive, dual, etc. control. In turn, Part 2 focuses on optimization, estimation and prediction for control. Part 3 is concerned with autonomous vehicles, while Part 4 addresses applications. Part 5 discusses computer methods in control, and Part 6 examines fractional order calculus in the modeling and control of dynamic systems. Part 7 focuses on modern robotics. Part 8 deals with modeling and identification, while Part 9 deals with problems related to security, fault detection and diagnostics. Part 10 explores intelligent systems in automatic control, and Part 11 discusses the use of control tools and techniques in biomedical engineering. Lastly, Part 12 considers engineering education and teaching with regard to automatic control and robotics.

The Agile Samurai

Adaptive Code

How Agile Masters Deliver Great Software

Effective Planning in an Imperfect World

Managing Risk on Software Projects

Hone your problem-solving skills by learning different algorithms and their implementation in Python

Scaling Software Agility

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 Anyone who develops software for a living needs a proven way to produce it better, faster, and cheaper. The Productive Programmer offers critical timesaving and productivity tools that you can adopt right away, no matter what platform you use. Master developer Neal Ford not only offers advice on the mechanics of productivity—how to work smarter, spurn interruptions, get the most out of your computer, and avoid repetition—he also details valuable practices that will help you elude common traps, improve your code, and become more valuable to your team. You’ll learn to: Write the test before you write the code Manage the lifecycle of your objects fastidiously Build only what you need now, not what you might need later Apply ancient philosophies to software development Question authority, rather than blindly adhere to standards Make hard things easier and impossible things possible through meta-programming Be sure all code within a method is at the same level of abstraction Pick the right editor and assemble the best tools for the job This isn’t theory, but the fruits of Ford’s real-world experience as an Application Architect at the global IT consultancy ThoughtWorks. Whether you’re a beginner or a pro with years of experience, you’ll improve your work and your career with the simple and straightforward principles in The Productive Programmer. Almost every software project begins with the utterances, “What will this cost?” and “When will this project be done?” Once those words are spoken, project stakeholders begin to wrestle with how to produce an estimate. Accurately estimating the cost or time to complete a software project is a serious problem for many software engineers, developers and project managers who struggle with costs running double original estimates, putting their careers at risk. It is reported that nearly 50% of all software projects are shelved and that one of the major causes is poor estimation practices. If developing software for internal use, poor estimates can represent a significant drain on corporate profits. Worldwide growth in the number of companies specializing in the development of software for use by other companies is staggering. India alone has nearly 20,000 such companies. Intense competition has led to an increased demand for fixed-bid pricing in client/vendor relationships, and has made effective cost estimation even more important and, in many cases, critical to a firm’s survival. There are many methods of estimation. Each method has its strengths and weaknesses, proponents and opponents. Knowing how and which one to use on a given project is key to developing acceptable estimates for either internal or external projects. Software Estimation Best Practices, Tools, & Techniques covers all facets of software estimation. It provides a detailed explanation of the various methods for estimating software size, development effort, cost, and schedule, including a comprehensive explanation of Test Effort Estimation. Emphasizing that software estimation should be based on a well-defined process, it presents software estimation best practices and shows how to avoid common pitfalls. This guide offers direction on which methods are most appropriate for each of the different project types commonly executed in the software development space and criteria for selecting software estimation tools. This comprehensive desk reference explains software estimation from scratch to help the beginner and features advanced techniques for more experienced estimators. It details project scheduling, including resource leveling and the concept of productivity, as applicable to software estimators, demonstrating the many benefits of moving from the current macro-productivity approach to a micro-productivity approach in software estimation. Software Estimation Best Practices, Tools, & Techniques: A Complete Guide for Software Project Estimators caters to the needs of all software project stakeholders, from novice to expert. It provides the valuable guidance needed to estimate the cost and time required to complete software projects within a reasonable margin of error for effective software development.

Write code that can adapt to changes. By applying this book’s principles, you can create code that accommodates new requirements and unforeseen scenarios without significant rewrites. Gary McLean Hall describes Agile best practices, principles, and patterns for designing and writing code that can evolve more quickly and easily, with fewer errors, because it doesn’t impede change. Now revised, updated, and expanded, Adaptive Code, Second Edition adds indispensable practical insights on Kanban, dependency inversion, and creating reusable abstractions. Drawing on over a decade of Agile consulting and development experience, McLean Hall has updated his best-seller with deeper coverage of unit testing, refactoring, pure dependency injection, and more. Master powerful new ways to: • Write code that enables and complements Scrum, Kanban, or any other Agile framework • Develop code that can survive major changes in requirements • Plan for adaptability by using dependencies, layering, interfaces, and design patterns • Perform unit testing and refactoring in tandem, gaining more value from both • Use the “golden master” technique to make legacy code adaptive • Build SOLID code with single-responsibility, open/closed, and Liskov substitution principles • Create smaller interfaces to support more-diverse client and architectural needs • Leverage dependency injection best practices to improve code adaptability • Apply dependency inversion with the Stairway pattern, and avoid related anti-patterns About You This book is for programmers of all skill levels seeking more-practical insight into design patterns, SOLID principles, unit testing, refactoring, and related topics. Most readers will have programmed in C#, Java, C++, or similar object-oriented languages, and will be familiar with core procedural programming techniques.

The Robert C. Martin Clean Code Collection (Collection)

More Effective Agile

Rapid Development

A Roadmap for Software Leaders

The Software Decision-Makers' Guide to Predictable Software Development

A Handbook with Tools

The Art of Agile Development

How to always be on time, and not risk missing important deadlines or go over budget This book is the result of many years of hard work, and plenty of lessons learned. I wrote it because I believe we can do better than the accepted "status quo" in the software industry. It took me years to learn what I needed to learn to come up with my version of the #NoEstimates approach. You can do it in weeks! The techniques and ideas described here will help you explore the #NoEstimates universe in a very practical and hands-on manner. You will walk through Carmen's story. Carmen is a senior, very experienced project manager who is now confronted with a very difficult project. One would say, an impossible project. Through the book, and with the help of Herman, Carmen discovers and slowly adopts #NoEstimates which helps her turn that project around. Just like I expect it will help with the project you are in right now. The book also includes many concrete approaches you can use to adopt #NoEstimates, or just adopt those practices on their own.

This is the first introductory statistics text to use an estimation approach from the start to help readers understand effect sizes, confidence intervals (CIs), and meta-analysis ('the new statistics'). It is also the first text to explain the new and exciting Open Science practices, which encourage replication and enhance the trustworthiness of research. In addition, the book explains NHST fully so students can understand published research. Numerous real research examples are used throughout. The book uses today's most effective learning strategies and promotes critical thinking, comprehension, and retention, to deepen users' understanding of statistics and modern research methods. The free ESCI (Exploratory Software for Confidence Intervals) software makes concepts visually vivid, and provides calculation and graphing facilities. The book can be used with or without ESCI. Other highlights include: - Coverage of both estimation and NHST approaches, and how to easily translate between the two. - Some exercises use ESCI to analyze data and create graphs including CIs, for best understanding of estimation methods. -Videos of the authors describing key concepts and demonstrating use of ESCI provide an engaging learning tool for traditional or flipped classrooms. -In-chapter exercises and quizzes with related commentary allow students to learn by doing, and to monitor their progress. -End-of-chapter

exercises and commentary, many using real data, give practice for using the new statistics to analyze data, as well as for applying research judgment in realistic contexts. -Don't fool yourself tips help students avoid common errors. -Red Flags highlight the meaning of "significance" and what p values actually mean. -Chapter outlines, defined key terms, sidebars of key points, and summarized take-home messages provide a study tool at exam time. -<http://www.routledge.com/cw/cumming> offers for students: ESCI downloads; data sets; key term flashcards; tips for using SPSS for analyzing data; and videos. For instructors it offers: tips for teaching the new statistics and Open Science; additional homework exercises; assessment items; answer keys for homework and assessment items; and downloadable text images; and PowerPoint lecture slides. Intended for introduction to statistics, data analysis, or quantitative methods courses in psychology, education, and other social and health sciences, researchers interested in understanding the new statistics will also appreciate this book. No familiarity with introductory statistics is assumed.

"One of the most significant books in my life." -Obie Fernandez, Author, *The Rails Way* "Twenty years ago, the first edition of *The Pragmatic Programmer* completely changed the trajectory of my career. This new edition could do the same for yours." -Mike Cohn, Author of *Succeeding with Agile, Agile Estimating and Planning, and User Stories Applied* ". . . filled with practical advice, both technical and professional, that will serve you and your projects well for years to come." -Andrea Goulet, CEO, Corgibytes, Founder, LegacyCode.Rocks ". . . lightning does strike twice, and this book is proof." -VM (Vicky) Brasseur, Director of Open Source Strategy, Juniper Networks *The Pragmatic Programmer* is one of those rare tech books you'll read, re-read, and read again over the years. Whether you're new to the field or an experienced practitioner, you'll come away with fresh insights each and every time. Dave Thomas and Andy Hunt wrote the first edition of this influential book in 1999 to help their clients create better software and rediscover the joy of coding. These lessons have helped a generation of programmers examine the very essence of software development, independent of any particular language, framework, or methodology, and the Pragmatic philosophy has spawned hundreds of books, screencasts, and audio books, as well as thousands of careers and success stories. Now, twenty years later, this new edition re-examines what it means to be a modern programmer. Topics range 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 Learn continuously Avoid the trap of duplicating knowledge Write flexible, dynamic, and adaptable code Harness the power of basic tools Avoid programming by coincidence Learn real requirements Solve the underlying problems of concurrent code Guard against security vulnerabilities Build teams of Pragmatic Programmers Take responsibility for your work and career Test ruthlessly and effectively, including property-based testing Implement the Pragmatic Starter Kit Delight your users Written as a series of self-contained sections and filled with classic and fresh anecdotes, thoughtful examples, and interesting analogies, *The Pragmatic Programmer* illustrates the best approaches 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. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

The main focus of this eBook is "How to get prepared for managing a remote team." Typical questions that come up while preparing are: Which country shall we outsource our work to?; What project shall we choose to start with?; Which company suits our needs best?; Shall we set up our own captive center or outsource to a partner?; Are we organized well enough to start offshoring work? Most people tend to focus a lot on these 'initiation' questions at the expense of wondering 'how to organize'. Preparation is seen as selecting the right country and partner and then 'just get going'. Many problems can be prevented by investing time in the right organization before the 'real work' starts. In this eBook, we try to provide advice on both perspectives, based on experiences from several experts around the globe. The first chapter is written by Hugo Messer, he describes how to get started. The main questions he answered in this chapter are related to 'initiation' and the questions above. Hugo has gained substantial experience in setting up and managing remote teams, with suppliers, freelancers and own offices. Then, Patrick van Dun, an experienced 'offshore founder', provides guidelines on the choice of setting up your own remote office versus engaging a partner. Zhenya Rozinskiy discusses his best practices for getting the right people on your team. Zhenya has set up several teams around the world. Amanda Crouch from the UK has over 20 years of experience as a management consultant and researcher. She looks at stimulating collaboration at the company and individual level. Ove Holmberg, an IT project manager and agile coach from Sweden, describes his concept of the virtual teamroom. Andreas Brilling from Germany works as engagement manager for CapGemini and has led a large offshoring initiative from Australia. In the final chapter Hugo shares his personal story of how he got started with setting up his own offices in India and Ukraine. This is the second eBook in a series of eBooks that will be published within a couple of month's interval and later on into one printed book. These eBooks are being written through a crowdwriting project and the authors are experts from all over the world.

Coding Theory
Code Complete, 2nd Edition
Estimating Software Costs
Controlling Software Projects
Algorithms, Architectures and Applications
Programming with the Kinect for Windows Software Development Kit

One of the most important key technologies for digital communication systems as well as storage media is coding theory. It provides a means to transmit information across time and space over noisy and unreliable communication channels. Coding Theory: Algorithms, Architectures and Applications provides a concise overview of channel coding theory and practice, as well as the accompanying signal processing architectures. The book is unique in presenting algorithms, architectures, and applications of coding theory in a unified framework. It covers the basics of coding theory before moving on to discuss algebraic linear block and cyclic codes, turbo codes and low density parity check codes and space-time codes. Coding Theory provides algorithms and architectures used for implementing coding and decoding strategies as well as coding schemes used in practice especially in communication systems. Feature of the book include: Unique presentation-like style for summarising main aspects Practical issues for implementation of coding techniques Sound theoretical approach to practical, relevant coding methodologies Covers standard coding schemes such as block and convolutional codes, coding schemes such as Turbo and LDPC codes, and space time codes currently in research, all covered in a common framework with respect to their applications. This book is ideal for postgraduate and undergraduate students of communication and information engineering, as well as computer science students. It will also be of use to engineers working in the industry who want to know more about the theoretical basics of coding theory and their application in currently relevant communication systems

Project managers, technical leads, and Windows programmers throughout the industry share an important concern--how to get their development schedules under control. Rapid Development addresses that concern head-on with philosophy, techniques, and tools that help shrink and control development schedules and keep projects moving. The style is friendly and conversational--and the content is impressive.

Publisher Fact Sheet A concise, hands-on approach to managing & improving the critical requirements process in software development.

Estimation, Open Science, and Beyond
 Lessons Learned in Offshoring and Nearshoring
 Bringing Realism to Estimating