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Software Engineering Approaches for Offshore and Outsourced Development

Today's software production is increasingly distributed. Gone are the days of one-company, one-site projects; most industrial developments involve teams split over locations, countries, and cultures. This distribution poses new challenges, for example, how to develop the software requirements specification, and how to manage the project. These challenges are formidable; many failures have been reported in outsourced and distributed projects, often due not to lack of technical expertise, but to difficulties in management and communication. SEAFOOD 2010, the fourth international conference on Software Engineering Advances For Outsourced and Offshore Development, was held in Peterhof (Saint Petersburg), Russia, on 17-18 June 2010. SEAFOOD 2010 provided an opportunity for participants from academia and industry to confront experiences, ideas and proposals. The submissions received covered a wide range of topics, from country-wide reports from Russia and Argentina to global project management. This volume includes 8 papers (4 full papers and 4 short papers) from the conference, selected after review by the Program Committee. The program also included two keynote presentations and the extended abstracts are included in this volume: A Smarter Way: The Software Engineering Method and Theory Initiative (Semat), by Ivar Jacobson, and The Consortium for IT Software Quality, by Richard Mark Soley and Bill Curtis. Many people contributed to SEAFOOD 2010. We thank the Program Committee and the external reviewers for their excellent work in reviewing and selecting the papers. The role of Andrei Voronkov's EasyChair conference system is

gratefully acknowledged."

C A Software Engineering Approach

Describes ways to incorporate domain modeling into software development.

An Integrated Approach to Software Engineering

Salary surveys worldwide regularly place software architect in the top 10 best jobs, yet no real guide exists to help developers become architects. Until now. This book provides the first comprehensive overview of software architecture's many aspects. Aspiring and existing architects alike will examine architectural characteristics, architectural patterns, component determination, diagramming and presenting architecture, evolutionary architecture, and many other topics. Mark Richards and Neal Ford—hands-on practitioners who have taught software architecture classes professionally for years—focus on architecture principles that apply across all technology stacks. You'll explore software architecture in a modern light, taking into account all the innovations of the past decade. This book examines: Architecture patterns: The technical basis for many architectural decisions Components: Identification, coupling, cohesion, partitioning, and granularity Soft skills: Effective team management, meetings, negotiation, presentations, and more Modernity: Engineering practices and operational approaches that have changed radically in the past few years Architecture as an engineering discipline: Repeatable results, metrics, and concrete valuations that add rigor to software architecture

Software Testing and Quality Assurance

Software Defined Networks: A Comprehensive Approach, Second Edition provides in-depth coverage of the technologies collectively known as Software Defined Networking (SDN). The book shows how to explain to business decision-makers the benefits and risks in shifting parts of a network to the SDN model, when to integrate SDN technologies in a network, and how to develop or acquire SDN applications. In addition, the book emphasizes the parts of the technology that encourage opening up the network, providing treatment for alternative approaches to SDN that expand the definition of SDN as networking vendors adopt traits of SDN to their existing solutions. Since the first edition was published, the SDN market has matured, and is being gradually integrated and morphed into something more compatible with mainstream networking vendors. This book reflects these changes, with coverage of the OpenDaylight controller and its support for multiple southbound protocols, the Inclusion of NETCONF in discussions on controllers and devices, expanded coverage of NFV, and updated coverage of the latest approved version (1.5.1) of the OpenFlow specification. Contains expanded coverage of controllers Includes a new chapter on NETCONF and SDN Presents expanded coverage of SDN in optical networks Provides

support materials for use in computer networking courses

A Philosophy of Software Design

Over the past decade, software engineering has developed into a highly respected field. Though computing and software engineering education continues to emerge as a prominent interest area of study, few books specifically focus on software engineering education itself. *Software Engineering: Effective Teaching and Learning Approaches and Practices* presents the latest developments in software engineering education, drawing contributions from over 20 software engineering educators from around the globe. Encompassing areas such as student assessment and learning, innovative teaching methods, and educational technology, this much-needed book greatly enhances libraries with its unique research content.

Software Engineering Metrics and Models

Client-Centered Software Development: The CO-FOSS Approach introduces a method to creating a customized software product for a single client, either from scratch or by reusing open source components. The clients are typically non-profit humanitarian, educational, or public service organizations. This approach has been used in undergraduate courses where students learn the principles of software development while implementing a real-world software product. This book provides instructors, students, clients, and professional software developers with detailed guidance for developing a new CO-FOSS product from conceptualization to completion. Features Provides instructors, students, clients, and professional software developers with a roadmap for the development of a new CO-FOSS product from conceptualization to completion Motivates students with real-world projects and community service experiences Teaches all elements of the software process, including requirements gathering, design, collaboration, coding, testing, client communication, refactoring, and writing developer and user documentation Uses source code that can be reused and refitted to suit the needs of future projects, since each CO-FOSS product is free and open source software Provides links to a rich variety of resources for instructors and students to freely use in their own courses that develop new CO-FOSS products for other non-profits.

Client-Centered Software Development

This book gathers chapters from some of the top international empirical software engineering researchers focusing on the practical knowledge necessary for conducting, reporting and using empirical methods in software engineering. Topics and features include guidance on how to design, conduct and report empirical studies. The volume also provides information across a range of techniques, methods and qualitative and quantitative issues to help build a toolkit applicable to the diverse software development contexts

Core C++

The second instance of the international summer school on Generative and Transformational Techniques in Software Engineering (GTTSE 2007) was held in Braga, Portugal, during July 2–7, 2007. This volume contains an augmented selection of the material presented at the school, including full tutorials, short tutorials, and contributions to the participants workshop. The GTTSE summer school series brings together PhD students, lecturers, technology presenters, as well as other researchers and practitioners who are interested in the generation and the transformation of programs, data, models, metamodels, documentation, and entire software systems. This concerns many areas of software engineering: software reverse and re-engineering, model-driven engineering, automated software engineering, generic language technology, to name a few. These areas differ with regard to the specific sorts of metamodels (or grammars, schemas, formats etc.) that underlie the involved artifacts, and with regard to the specific techniques that are employed for the generation and the transformation of the artifacts. The first instance of the school was held in 2005 and its proceedings appeared as volume 4143 in the LNCS series.

Software Engineering

This book contains the refereed proceedings of the 11th International Conference on Agile Software Development, XP 2010, held in Trondheim, Norway, in June 2010. In order to better evaluate the submitted papers and to highlight the applicational aspects of agile software practices, there were two different program committees, one for research papers and one for experience reports. Regarding the research papers, 11 out of 39 submissions were accepted as full papers; and as far as the experience reports were concerned, the respective number was 15 out of 50 submissions. In addition to these papers, this volume also includes the short research papers, the abstracts of the posters, the position papers of the PhD symposium, and the abstracts of the panel on “Collaboration in an Agile World”.

How to Engineer Software

Non-Functional Requirements in Software Engineering presents a systematic and pragmatic approach to 'building quality into' software systems. Systems must exhibit software quality attributes, such as accuracy, performance, security and modifiability. However, such non-functional requirements (NFRs) are difficult to address in many projects, even though there are many techniques to meet functional requirements in order to provide desired functionality. This is particularly true since the NFRs for each system typically interact with each other, have a broad impact on the system and may be subjective. To enable developers to systematically deal with a system's diverse NFRs, this book presents the NFR Framework. Structured graphical facilities are offered for stating NFRs and managing them by refining and inter-relating

NFRs, justifying decisions, and determining their impact. Since NFRs might not be absolutely achieved, they may simply be satisfied sufficiently ('satisficed'). To reflect this, NFRs are represented as 'softgoals', whose interdependencies, such as tradeoffs and synergy, are captured in graphs. The impact of decisions is qualitatively propagated through the graph to determine how well a chosen target system satisfies its NFRs. Throughout development, developers direct the process, using their expertise while being aided by catalogues of knowledge about NFRs, development techniques and tradeoffs, which can all be explored, reused and customized. Non-Functional Requirements in Software Engineering demonstrates the applicability of the NFR Framework to a variety of NFRs, domains, system characteristics and application areas. This will help readers apply the Framework to NFRs and domains of particular interest to them. Detailed treatments of particular NFRs - accuracy, security and performance requirements - along with treatments of NFRs for information systems are presented as specializations of the NFR Framework. Case studies of NFRs for a variety of information systems include credit card and administrative systems. The use of the Framework for particular application areas is illustrated for software architecture as well as enterprise modelling. Feedback from domain experts in industry and government provides an initial evaluation of the Framework and some case studies. Drawing on research results from several theses and refereed papers, this book's presentation, terminology and graphical notation have been integrated and illustrated with many figures. Non-Functional Requirements in Software Engineering is an excellent resource for software engineering practitioners, researchers and students.

Pointers in C

Market_Desc: · Programmers· Software Engineers· Requirements Engineers· Software Quality Engineers Special Features: · Offers detailed coverage of software measures. Exposes students to quantitative methods of identifying important features of software products and processes· Complete Case Study. Through an air traffic control study, students can trace the application of methods and practices in each chapter· Problems. A broad range of problems and references follow each chapter· Glossary of technical terms and acronyms facilitate review of basic ideas· Example code given in C++ and Java· References to related web pages make it easier for students to expand horizons About The Book: This book is the first comprehensive study of a quantitative approach to software engineering, outlining prescribed software design practices and measures necessary to assess software quality, cost, and reliability. It also introduces Computational Intelligence, which can be applied to the development of software systems.

Parallel Computer Architecture

Guide to Advanced Empirical Software Engineering

Pointers in C provides a resource for professionals and advanced students needing in-depth but hands-on coverage of pointer basics and advanced features. The goal is to help programmers in wielding the full potential of pointers. In spite of its vast usage, understanding and proper usage of pointers remains a significant problem. This book's aim is to first introduce the basic building blocks such as elaborate details about memory, the compilation process (parsing/preprocessing/assembler/object code generation), the runtime memory organization of an executable and virtual memory. These basic building blocks will help both beginners and advanced readers to grasp the notion of pointers very easily and clearly. The book is enriched with several illustrations, pictorial examples, and code from different contexts (Device driver code snippets, algorithm, and data structures code where pointers are used). Pointers in C contains several quick tips which will be useful for programmers for not just learning the pointer concept but also while using other features of the C language. Chapters in the book are intuitive, and there is a strict logical flow among them and each chapter forms a basis for the next chapter. This book contains every small aspect of pointer features in the C language in their entirety.

Software Defined Networks

Project-Based Software Engineering is the first book to provide hands-on process and practice in software engineering essentials for the beginner. The book presents steps through the software development life cycle and two running case studies that develop as the steps are presented. Running parallel to the process presentation and case studies, the book supports a semester-long software development project. This book focuses on object-oriented software development, and supports the conceptualization, analysis, design and implementation of an object-oriented project. It is mostly language-independent, with necessary code examples in Java. A subset of UML is used, with the notation explained as needed to support the readers' work. Two running case studies a video game and a library check out system show the development of a software project. Both have sample deliverables and thus provide the reader with examples of the type of work readers are to create. This book is appropriate for readers looking to gain experience in project analysis, design implementation, and testing.

A Discipline for Software Engineering

This textbook provides an introduction to software engineering for undergraduate students of computer science. Its emphasis is on a case study approach in which a project is developed through the course of the book illustrating the different activities of software development. The sequence of chapters is essentially the same as the sequence of activities performed during a typical software project. All activities, including quality assurance and control activities, are described in each chapter as integral activities for that phase of the development process. Similarly, the author carefully introduces appropriate metrics for controlling and assessing the software process. This book is intended for students who have had no

previous training in software engineering and is suitable for a one semester course. In this new edition two trends are clearly highlighted: software processes and object orientation. From reviews of the first edition "I can recommend this book for classroom adoption or individual study" Computing Reviews "Overall, the book is very readable and exceptionally well organized exposes the reader to many current sophisticated formal and quantitative methods." American Scientist

Essentials of Software Engineering

Essentials of Software Engineering, Second Edition is a comprehensive, yet concise introduction to the core fundamental topics and methodologies of software development. Ideal for new students or seasoned professionals looking for a new career in the area of software engineering, this text presents the complete life cycle of a software system, from inception to release and through support. The authors have broken the text into six distinct sections covering programming concepts, system analysis and design, principles of software engineering, development and support processes, methodologies, and product management. Presenting topics emphasized by the IEEE Computer Society sponsored Software Engineering Body of Knowledge (SWEBOK) and by the Software Engineering 2004 Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering, the second edition of Essentials of Software Engineering is an exceptional text for those entering the exciting world of software development. New topics of the Second Edition include: Process definition and communications added in Chapter 4 Requirements traceability added in Chapter 6 Further design concerns, such as impedance mismatch in Chapter 7 Law of Demeter in Chapter 8 Measuring project properties and GQM in Chapter 13 Security and software engineering in a new Chapter 14

System Engineering Analysis, Design, and Development

Introduction to programming; Essentials; Scalar data types; Control flow; Operators and expressions; Arrays and pointers; Storage classes; Structures and unions; Functions; The C preprocessor; Input and output; Software engineering.

Fundamentals of Software Architecture

Software Engineering: Architecture-driven Software Development is the first comprehensive guide to the underlying skills embodied in the IEEE's Software Engineering Body of Knowledge (SWEBOK) standard. Standards expert Richard Schmidt explains the traditional software engineering practices recognized for developing projects for government or corporate systems. Software engineering education often lacks standardization, with many institutions focusing on implementation rather than design as it impacts product architecture. Many graduates join the workforce with incomplete skills, leading to software projects that either fail outright or run woefully over budget and behind schedule. Additionally, software engineers

need to understand system engineering and architecture—the hardware and peripherals their programs will run on. This issue will only grow in importance as more programs leverage parallel computing, requiring an understanding of the parallel capabilities of processors and hardware. This book gives both software developers and system engineers key insights into how their skillsets support and complement each other. With a focus on these key knowledge areas, Software Engineering offers a set of best practices that can be applied to any industry or domain involved in developing software products. A thorough, integrated compilation on the engineering of software products, addressing the majority of the standard knowledge areas and topics Offers best practices focused on those key skills common to many industries and domains that develop software Learn how software engineering relates to systems engineering for better communication with other engineering professionals within a project environment

Agile Processes in Software Engineering and Extreme Programming

Want a great software development team? Look no further. How to Recruit and Hire Great Software Engineers: Building a Crack Development Team is a field guide and instruction manual for finding and hiring excellent engineers that fit your team, drive your success, and provide you with a competitive advantage. Focusing on proven methods, the book guides you through creating and tailoring a hiring process specific to your needs. You'll learn to establish, implement, evaluate, and fine-tune a successful hiring process from beginning to end. Some studies show that really good programmers can be as much as 5 or even 10 times more productive than the rest. How do you find these rock star developers? Patrick McCuller, an experienced engineering and hiring manager, has made answering that question part of his life's work, and the result is this book. It covers sourcing talent, preparing for interviews, developing questions and exercises that reveal talent (or the lack thereof), handling common and uncommon situations, and onboarding your new hires. How to Recruit and Hire Great Software Engineers will make your hiring much more effective, providing a long-term edge for your projects. It will: Teach you everything you need to know to find and evaluate great software developers. Explain why and how you should consider candidates as customers, which makes offers easy to negotiate and close. Give you the methods to create and engineer an optimized process for your business from job description to onboarding and the hundreds of details in between. Provide analytical tools and metrics to help you improve the quality of your hires. This book will prove invaluable to new managers. But McCuller's deep thinking on the subject will also help veteran managers who understand the essential importance of finding just the right person to move projects forward. Put into practice, the hiring process this book prescribes will not just improve the success rate of your projects—it'll make your work life easier and lot more fun.

C A Software Engineering Approach

Today's software engineer must be able to employ more than one kind of software process, ranging from agile

methodologies to the waterfall process, from highly integrated tool suites to refactoring and loosely coupled tool sets. Braude and Bernstein's thorough coverage of software engineering perfects the reader's ability to efficiently create reliable software systems, designed to meet the needs of a variety of customers. Topical highlights . . .

- Process: concentrates on how applications are planned and developed
- Design: teaches software engineering primarily as a requirements-to-design activity
- Programming and agile methods: encourages software engineering as a code-oriented activity
- Theory and principles: focuses on foundations
- Hands-on projects and case studies: utilizes active team or individual project examples to facilitate understanding theory, principles, and practice

In addition to knowledge of the tools and techniques available to software engineers, readers will grasp the ability to interact with customers, participate in multiple software processes, and express requirements clearly in a variety of ways. They will have the ability to create designs flexible enough for complex, changing environments, and deliver the proper products.

Project-based Software Engineering

A highly readable text designed for beginning and intermediate C programmers. While focusing on the programming language, the book emphasises stylistic issues and software engineering principles so as to develop programs that are readable, maintainable, portable, and efficient. The software engineering techniques discussed throughout the text are illustrated in a C interpreter, whose source listing is provided on diskette, and highlighted "bug alerts" offer tips on the common errors made by novice programmers. Can be used as the primary course textbook or as the main reference by programmers intent on learning C.

Software Engineering: Effective Teaching and Learning Approaches and Practices

This book is designed to teach new or experienced C++ programmers the principles of the C++ programming language--with an emphasis on the fundamentals of object-oriented programming, software engineering, and maintenance. The book progresses from simple language constructs and programming constructs to more complex, stressing the choices that the programmer can make and explaining criteria for arriving at high quality programs.

Domain-driven Design

A superior primer on software testing and quality assurance, from integration to execution and automation This important new work fills the pressing need for a user-friendly text that aims to provide software engineers, software quality professionals, software developers, and students with the fundamental developments in testing theory and common testing practices. Software Testing and Quality Assurance: Theory and Practice equips readers with a solid understanding of:

Practices that support the production of quality software Software testing techniques Life-cycle models for requirements, defects, test cases, and test results Process models for units, integration, system, and acceptance testing How to build test teams, including recruiting and retaining test engineers Quality Models, Capability Maturity Model, Testing Maturity Model, and Test Process Improvement Model Expertly balancing theory with practice, and complemented with an abundance of pedagogical tools, including test questions, examples, teaching suggestions, and chapter summaries, this book is a valuable, self-contained tool for professionals and an ideal introductory text for courses in software testing, quality assurance, and software engineering.

The Cathedral & the Bazaar

Righting Software

This book covers the application of computational fluid dynamics from low-speed to high-speed flows, especially for use in aerospace applications.

Non-Functional Requirements in Software Engineering

Get the most out of this foundational reference and improve the productivity of your software teams. This open access book collects the wisdom of the 2017 "Dagstuhl" seminar on productivity in software engineering, a meeting of community leaders, who came together with the goal of rethinking traditional definitions and measures of productivity. The results of their work, *Rethinking Productivity in Software Engineering*, includes chapters covering definitions and core concepts related to productivity, guidelines for measuring productivity in specific contexts, best practices and pitfalls, and theories and open questions on productivity. You'll benefit from the many short chapters, each offering a focused discussion on one aspect of productivity in software engineering. Readers in many fields and industries will benefit from their collected work. Developers wanting to improve their personal productivity, will learn effective strategies for overcoming common issues that interfere with progress. Organizations thinking about building internal programs for measuring productivity of programmers and teams will learn best practices from industry and researchers in measuring productivity. And researchers can leverage the conceptual frameworks and rich body of literature in the book to effectively pursue new research directions. What You'll Learn Review the definitions and dimensions of software productivity See how time management is having the opposite of the intended effect Develop valuable dashboards Understand the impact of sensors on productivity Avoid software development waste Work with human-centered methods to measure productivity Look at the intersection of neuroscience and productivity Manage interruptions and context-switching Who Book Is For Industry developers and those

responsible for seminar-style courses that include a segment on software developer productivity. Chapters are written for a generalist audience, without excessive use of technical terminology.

Software Engineering in C

This text provides a comprehensive, but concise introduction to software engineering. It adopts a methodical approach to solving software engineering problems proven over several years of teaching, with outstanding results. The book covers concepts, principles, design, construction, implementation, and management issues of software systems. Each chapter is organized systematically into brief, reader-friendly sections, with itemization of the important points to be remembered. Diagrams and illustrations also sum up the salient points to enhance learning. Additionally, the book includes a number of the author's original methodologies that add clarity and creativity to the software engineering experience, while making a novel contribution to the discipline. Upholding his aim for brevity, comprehensive coverage, and relevance, Foster's practical and methodical discussion style gets straight to the salient issues, and avoids unnecessary topics and minimizes theoretical coverage.

Managing Humans

Right Your Software and Transform Your Career Righting Software presents the proven, structured, and highly engineered approach to software design that renowned architect Juval Löwy has practiced and taught around the world. Although companies of every kind have successfully implemented his original design ideas across hundreds of systems, these insights have never before appeared in print. Based on first principles in software engineering and a comprehensive set of matching tools and techniques, Löwy's methodology integrates system design and project design. First, he describes the primary area where many software architects fail and shows how to decompose a system into smaller building blocks or services, based on volatility. Next, he shows how to flow an effective project design from the system design; how to accurately calculate the project duration, cost, and risk; and how to devise multiple execution options. The method and principles in Righting Software apply regardless of your project and company size, technology, platform, or industry. Löwy starts the reader on a journey that addresses the critical challenges of software development today by righting software systems and projects as well as careers—and possibly the software industry as a whole. Software professionals, architects, project leads, or managers at any stage of their career will benefit greatly from this book, which provides guidance and knowledge that would otherwise take decades and many projects to acquire. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Software Engineering

SEAFOOD 2009: Enabling Global Partnerships to Deliver on Business Needs Companies have been outsourcing areas of software development work for many years, either because of the engineering challenges or because the outsourced aspect is not central to their core business. A profound transformation has been affecting this model over recent years: a massive transfer of development activities from the USA and Europe to a skilled labor force in service-providing countries. This transformation has been driven by the demands of a global business climate seeking to increase the value delivery of IT investment. However, the ability to realize this value can prove problematic in practice. Of particular concern are the hidden costs of globally distributed models of working, such as understanding and communicating the true business needs across organizational and cultural boundaries. To address such issues, offshore outsourcing requires different support from in-house development and this means adapting familiar techniques, processes and tools to this setting, as well as perhaps creating innovative new ones. Coupled with this industry transformation there is hence a pressing need to re-examine those software engineering approaches that either facilitate or impede this model of working. With an inevitable focus on the economy in 2009, business decisions regarding the sourcing of software development projects will come under close scrutiny. It will become increasingly critical to design global partnerships that both clarify cost/benefits and enable delivery on business needs.

How to Recruit and Hire Great Software Engineers

Praise for the first edition: "This excellent text will be useful to every system engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical fashion. The breadth and depth of the author's presentation of SE principles and practices is outstanding." -Philip Allen This textbook presents a comprehensive, step-by-step guide to System Engineering analysis, design, and development via an integrated set of concepts, principles, practices, and methodologies. The methods presented in this text apply to any type of human system -- small, medium, and large organizational systems and system development projects delivering engineered systems or services across multiple business sectors such as medical, transportation, financial, educational, governmental, aerospace and defense, utilities, political, and charity, among others. Provides a common focal point for "bridging the gap" between and unifying System Users, System Acquirers, multi-discipline System Engineering, and Project, Functional, and Executive Management education, knowledge, and decision-making for developing systems, products, or services Each chapter provides definitions of key terms, guiding principles, examples, author's notes, real-world examples, and exercises, which highlight and reinforce key SE&D concepts and practices Addresses concepts employed in Model-Based Systems Engineering (MBSE), Model-Driven Design (MDD), Unified Modeling Language (UML) / Systems Modeling Language (SysML), and Agile/Spiral/V-Model Development such as user needs, stories, and use cases analysis; specification development; system architecture development; User-Centric System Design (UCSD); interface definition & control; system integration & test; and Verification & Validation (V&V) Highlights/introduces a new 21st Century Systems Engineering & Development (SE&D) paradigm that is easy to understand

and implement. Provides practices that are critical stagingpoints for technical decision making such as Technical StrategyDevelopment; Life Cycle requirements; Phases, Modes, & States;SE Process; Requirements Derivation; System ArchitectureDevelopment, User-Centric System Design (UCSD); EngineeringStandards, Coordinate Systems, and Conventions; et al. Thoroughly illustrated, with end-of-chapter exercises andnumerous case studies and examples, Systems EngineeringAnalysis, Design, and Development, Second Edition is a primarytextbook for multi-discipline, engineering, system analysis, andproject management undergraduate/graduate level students and avaluable reference for professionals.

C, a Software Engineering Approach

SEMAT (Software Engineering Methods and Theory) is an international initiative designed to identify a common ground, or universal standard, for software engineering. It is supported by some of the most distinguished contributors to the field. Creating a simple language to describe methods and practices, the SEMAT team expresses this common ground as a kernel-or framework-of elements essential to all software development. The Essence of Software Engineering introduces this kernel and shows how to apply it when developing software and improving a team's way of working. It is a book for software professionals, not methodologists. Its usefulness to development team members, who need to evaluate and choose the best practices for their work, goes well beyond the description or application of any single method. "Software is both a craft and a science, both a work of passion and a work of principle. Writing good software requires both wild flights of imagination and creativity, as well as the hard reality of engineering tradeoffs. This book is an attempt at describing that balance." —Robert Martin (unclebob) "The work of Ivar Jacobson and his colleagues, started as part of the SEMAT initiative, has taken a systematic approach to identifying a 'kernel' of software engineering principles and practices that have stood the test of time and recognition." —Bertrand Meyer "The software development industry needs and demands a core kernel and language for defining software development practices—practices that can be mixed and matched, brought on board from other organizations; practices that can be measured; practices that can be integrated; and practices that can be compared and contrasted for speed, quality, and price. This thoughtful book gives a good grounding in ways to think about the problem, and a language to address the need, and every software engineer should read it." —Richard Soley

Software Engineering Approaches for Offshore and Outsourced Development

Open source provides the competitive advantage in the Internet Age. According to the August Forrester Report, 56 percent of IT managers interviewed at Global 2,500 companies are already using some type of open source software in their infrastructure and another 6 percent will install it in the next two years. This revolutionary model for collaborative software development is being embraced and studied by many of the biggest players in the high-tech industry, from Sun Microsystems to IBM to Intel.The Cathedral & the Bazaar is a must for anyone who cares about the future of the computer

industry or the dynamics of the information economy. Already, billions of dollars have been made and lost based on the ideas in this book. Its conclusions will be studied, debated, and implemented for years to come. According to Bob Young, "This is Eric Raymond's great contribution to the success of the open source revolution, to the adoption of Linux-based operating systems, and to the success of open source users and the companies that supply them." The interest in open source software development has grown enormously in the past year. This revised and expanded paperback edition includes new material on open source developments in 1999 and 2000. Raymond's clear and effective writing style accurately describing the benefits of open source software has been key to its success. With major vendors creating acceptance for open source within companies, independent vendors will become the open source story in 2001.

The Essence of Software Engineering

The role of metrics and models in software development; Software metrics; Measurement and analysis; Small scale experiments, micro-models of effort, and programming techniques; Macro-models of productivity; Macro-models for effort estimation; Defect models; The future of software engineering metrics and models; References; Appendices; Index.

The Art of Agile Development

The author starts with the premise that C is an excellent language for software engineering projects. The book concentrates on programming style, particularly readability, maintainability, and portability. Documents the proposed ANSI Standard, which is expected to be ratified in 1987. This book is designed as a text for both beginner and intermediate-level programmers.

SOFTWARE ENGINEERING: AN ENGINEERING APPROACH

A one-semester college course in software engineering focusing on cloud computing, software as a service (SaaS), and Agile development using Extreme Programming (XP). This book is neither a step-by-step tutorial nor a reference book. Instead, our goal is to bring a diverse set of software engineering topics together into a single narrative, help readers understand the most important ideas through concrete examples and a learn-by-doing approach, and teach readers enough about each topic to get them started in the field. Courseware for doing the work in the book is available as a virtual machine image that can be downloaded or deployed in the cloud. A free MOOC (massively open online course) at saas-class.org follows the book's content and adds programming assignments and quizzes. See <http://saasbook.info> for details.

Software Engineering

Managing Humans is a selection of the best essays from Michael Lopp's popular website Rands in Repose (www.randsinrepose.com). Lopp is one of the most sought-after IT managers in Silicon Valley, and draws on his experiences at Apple, Netscape, Symantec, and Borland. This book reveals a variety of different approaches for creating innovative, happy development teams. It covers handling conflict, managing wildly differing personality types, infusing innovation into insane product schedules, and figuring out how to build lasting and useful engineering culture. The essays are biting, hilarious, and always informative.

Generative and Transformational Techniques in Software Engineering II

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.

Engineering Software as a Service

A guide to the application of the theory and practice of computing to develop and maintain software that economically solves real-world problem How to Engineer Software is a practical, how-to guide that explores the concepts and techniques of model-based software engineering using the Unified Modeling Language. The author—a noted expert on the topic—demonstrates how software can be developed and maintained under a true engineering discipline. He describes the relevant software engineering practices that are grounded in Computer Science and Discrete Mathematics. Model-based software engineering uses semantic modeling to reveal as many precise requirements as possible. This approach separates business complexities from technology complexities, and gives developers the most freedom in finding optimal designs and code. The book promotes development scalability through domain partitioning and subdomain partitioning. It also explores software documentation that specifically and intentionally adds value for development and maintenance. This important book: Contains many illustrative examples of model-based software engineering, from semantic model all the way to executable code Explains how to derive verification (acceptance) test cases from a semantic model Describes project estimation, along with alternative software development and maintenance processes Shows how to develop and maintain cost-effective software that solves real-world problems Written for graduate and undergraduate students in software engineering and professionals in the field, How to Engineer Software offers an introduction to applying the theory of computing with practice and judgment in order to economically develop and maintain software.

Applied Computational Aerodynamics

A highly readable text designed for beginning and intermediate C programmers. While focusing on the programming language, the book emphasises stylistic issues and software engineering principles so as to develop programs that are readable, maintainable, portable, and efficient. The software engineering techniques discussed throughout the text are illustrated in a C interpreter, whose source listing is provided on diskette, and highlighted "bug alerts" offer tips on the common errors made by novice programmers. Can be used as the primary course textbook or as the main reference by programmers intent on learning C.

Rethinking Productivity in Software Engineering

This book outlines a set of issues that are critical to all of parallel architecture--communication latency, communication bandwidth, and coordination of cooperative work (across modern designs). It describes the set of techniques available in hardware and in software to address each issues and explore how the various techniques interact.

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