

Software Development Documents

Software DevelopmentAdvanced Principles for Improving Database Design, Systems Modeling, and Software DevelopmentBuilding Tightly Integrated Software Development Environments: The IPSEN ApproachSoftware Engineering And Quality AssuranceGuide to Efficient Software DesignDeveloping Safety-Critical SoftwareSoftware Engineering: Effective Teaching and Learning Approaches and PracticesMedicare Transaction SystemThe Software Development ProjectSoftware ArchitectureOpen SourcesLiterate ProgrammingSoftware EngineeringPractical Guide to Software Quality ManagementSoftware Engineering HandbookBeginning Software EngineeringA Brief History of ComputingSoftware EngineeringDocs Like CodeSoftware Engineering 3Software EngineeringSoftware Development Techniques for Constructive Information Systems DesignRequirements Engineering and Management for Software Development ProjectsThe Future of Software EngineeringSystems and Software Development, Modeling, and Analysis: New Perspectives and MethodologiesDynamic Documents with R and knitrAdvances in Software EngineeringDeveloping Performance Support for Computer SystemsManaging Software DevelopmentCreating a Software Engineering CultureSuccessful Software DevelopmentAndroid Wireless Application Development, Portable DocumentsEncyclopedia of Software Engineering Three-Volume Set (Print)Agile Software Development in the LargeNew Software Engineering Paradigm Based on Complexity ScienceTrustworthy Software Development ProcessesDocumenting Software ArchitecturesAgile DocumentationNew Trends in Software Methodologies, Tools, and TechniquesKnowledge-Based Software Engineering

Software Development

The cut-and-paste approach to writing statistical reports is not only tedious and laborious, but also can be harmful to scientific research, because it is inconvenient to reproduce the results. Dynamic Documents with R and knitr introduces a new approach via dynamic documents, i.e. integrating computing directly with reporting. A comprehensive guide

Advanced Principles for Improving Database Design, Systems Modeling, and Software Development

Robert Irwin travels back in time with his real-life best friend, in his third wild adventure Robert and his best friend Riley are visiting the Canadian badlands in Alberta with Riley's Uncle Nate. The badlands are home to more than 35 different species of dinosaur fossils. Robert and Riley get pulled back in time to Alberta, Canada during the Late Cretaceous period, to find a heavily armored euoplocephalus trapped in vines. The rescue doesn't go according to plan when a ferocious gorgosaurus arrives on the scene, looking for a snack.

Building Tightly Integrated Software Development Environments: The IPSEN Approach

Software is the essential enabler for the new economy and science. It creates new markets and new directions for a more reliable, flexible, and robust society. It empowers the exploration of our world in ever more depth. However, software often falls short behind our expectations. Current software methodologies, tools, and techniques remain expensive and not yet reliable for a highly changeable and evolutionary market. Many approaches have been proven only as case-by-case oriented methods. This book presents a number of new trends and theories in the direction in which we believe software science and engineering may develop to transform the role of software and science in tomorrow's information society. This book is an attempt to capture the essence of a new state of art in software science and its supporting technology. The book also aims at identifying the challenges such a technology has to master. This book covers subjects on Ontology and Software Requirement, Enterprise and Conceptual Software Models, Declarative Representation for Software Development, Requirement Representation and Formalization, Formal Specification and Language Interpretation, Legacy Systems and Language Conversions, Software Quality and Development Measurement, and Software Development Practices Models examples. Each of these chapters contains well-reviewed and selected papers, so the reader can enjoy the state-of-the-art on the need on such new emerged technology.

Software Engineering And Quality Assurance

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

Guide to Efficient Software Design

Developing Safety-Critical Software

If you are responsible for designing, implementing, or managing a quality software program, this updated edition of the

Practical Guide to Software Quality Management now identifies 10 major components that make up a solid program in line with ISO 9001 quality management precepts. Thoroughly revised and with new chapters on software safety and software risk management, this comprehensive primer provides you with the starting points for a standardized documentation system, and analyzes each individual program component separately, addressing in detail its specific role and overall importance to the system.

Software Engineering: Effective Teaching and Learning Approaches and Practices

The amount of software used in safety-critical systems is increasing at a rapid rate. At the same time, software technology is changing, projects are pressed to develop software faster and more cheaply, and the software is being used in more critical ways. Developing Safety-Critical Software: A Practical Guide for Aviation Software and DO-178C Compliance equips you with the information you need to effectively and efficiently develop safety-critical, life-critical, and mission-critical software for aviation. The principles also apply to software for automotive, medical, nuclear, and other safety-critical domains. An international authority on safety-critical software, the author helped write DO-178C and the U.S. Federal Aviation Administration's policy and guidance on safety-critical software. In this book, she draws on more than 20 years of experience as a certification authority, an avionics manufacturer, an aircraft integrator, and a software developer to present best practices, real-world examples, and concrete recommendations. The book includes: An overview of how software fits into the systems and safety processes Detailed examination of DO-178C and how to effectively apply the guidance Insight into the DO-178C-related documents on tool qualification (DO-330), model-based development (DO-331), object-oriented technology (DO-332), and formal methods (DO-333) Practical tips for the successful development of safety-critical software and certification Insightful coverage of some of the more challenging topics in safety-critical software development and verification, including real-time operating systems, partitioning, configuration data, software reuse, previously developed software, reverse engineering, and outsourcing and offshoring An invaluable reference for systems and software managers, developers, and quality assurance personnel, this book provides a wealth of information to help you develop, manage, and approve safety-critical software more confidently.

Medicare Transaction System

The Software Development Project

Software architecture—the conceptual glue that holds every phase of a project together for its many stakeholders—is widely recognized as a critical element in modern software development. Practitioners have increasingly discovered that

close attention to a software system's architecture pays valuable dividends. Without an architecture that is appropriate for the problem being solved, a project will stumble along or, most likely, fail. Even with a superb architecture, if that architecture is not well understood or well communicated the project is unlikely to succeed. Documenting Software Architectures, Second Edition, provides the most complete and current guidance, independent of language or notation, on how to capture an architecture in a commonly understandable form. Drawing on their extensive experience, the authors first help you decide what information to document, and then, with guidelines and examples (in various notations, including UML), show you how to express an architecture so that others can successfully build, use, and maintain a system from it. The book features rules for sound documentation, the goals and strategies of documentation, architectural views and styles, documentation for software interfaces and software behavior, and templates for capturing and organizing information to generate a coherent package. New and improved in this second edition: Coverage of architectural styles such as service-oriented architectures, multi-tier architectures, and data models Guidance for documentation in an Agile development environment Deeper treatment of documentation of rationale, reflecting best industrial practices Improved templates, reflecting years of use and feedback, and more documentation layout options A new, comprehensive example (available online), featuring documentation of a Web-based service-oriented system Reference guides for three important architecture documentation languages: UML, AADL, and SysML

Software Architecture

Software development and information systems design have a unique relationship, but are often discussed and studied independently. However, meticulous software development is vital for the success of an information system. Software Development Techniques for Constructive Information Systems Design focuses the aspects of information systems and software development as a merging process. This reference source pays special attention to the emerging research, trends, and experiences in this area which is bound to enhance the reader's understanding of the growing and ever-adapting field. Academics, researchers, students, and working professionals in this field will benefit from this publication's unique perspective.

Open Sources

This book contains both relevant real-world research, as well as reviews of different areas of interest in the software engineering literature, such as clone identification. The contents of the various sections will provide a better understanding of known problems and detailed treatment of advanced topics. Consequently, the book consolidates the work and findings from leading researchers in the software research community in key areas such as maintainability, architectural recovery, code analysis, software migration, and tool support.

Literate Programming

Software Engineering

Developing Performance Support for Computer Systems: A Strategy for Maximizing Usability and Learnability provides detailed planning, design, and development guidance for generating performance support for new or upgraded computer systems. Performance support includes documentation, online help, coaches and wizards, training, and other materials necessary to enable users to perform their jobs more efficiently and effectively. This volume offers a strategy for maximizing ease-of-use and ease-of-learning through an integrated performance support systems approach. The text provides how-to guidance throughout that developers can apply directly to the design of their performance support tools and products. Rather than cover a few specific topic areas, it examines the entire spectrum of performance support. The book explains how to match performance support methods to task requirements, gives an overview of important user characteristics, and provides general guidance for presentation, layout, formatting, media selection, the use of color and icons, and accessibility. Evaluation checklists are included in the appendices and are also available online. Although this book primarily addresses the development of performance support for large software systems, the principles and approaches are valuable for any systems development environment.

Practical Guide to Software Quality Management

This volume contains papers presented at the International Conference on Software Process (ICSP 2009) held in Vancouver, Canada, during May 16-17, 2009. ICSP 2009 was the third conference of the ICSP series, continuing the software process workshops from 25 years ago. The theme of ICSP 2009 was “Processes to Develop Trustworthy Software.” Software development takes place in a dynamic context of frequently changing technologies and limited resources. Teams worldwide are under increasing pressure to deliver trustworthy software products more quickly and with higher levels of quality. At the same time, global competition is forcing software development organizations to cut costs by rationalizing processes, outsourcing part or all of their activities, re- ing existing software in new or modified applications and evolving existing systems to meet new needs, while still minimizing the risk of projects failing to deliver. To address these difficulties, new or modified processes are emerging including lean and agile methods, plan-based product line development, and increased integration with systems engineering processes. Papers present research and real-world experience in many areas of software and systems processes impacting trustworthy software including: new software devel- ment approaches; software quality; integrating software and business processes; CMMI and other process improvement initiatives; simulation and modeling of so- ware processes; techniques for software process representation and analysis; and process tools and

metrics.

Software Engineering Handbook

As knowledge-based software engineering matures and increasingly automates the software engineering life cycle, software engineering resources are shifting towards knowledge acquisition and the automated reuse of expert knowledge for developing software artifacts. This book summarizes the work and new research results presented at the Tenth Joint Conference on Knowledge-based Software Engineering (JCKBSE 2012), held on the island of Rhodes, Greece, in August 2012. The biennial Joint Conference on Knowledge-Based Software Engineering brings together researchers and practitioners to share ideas on the foundations, techniques, tools, and applications of knowledge-based software engineering theory and practice. Topics addressed include theoretical foundations, practical techniques, software tools, applications and/or experience reports in knowledge-based software engineering. This book is published in the subseries Knowledge-Based Intelligent Engineering Systems (KBIES).

Beginning Software Engineering

A Brief History of Computing

A complete introduction to building robust and reliable software Beginning Software Engineering demystifies the software engineering methodologies and techniques that professional developers use to design and build robust, efficient, and consistently reliable software. Free of jargon and assuming no previous programming, development, or management experience, this accessible guide explains important concepts and techniques that can be applied to any programming language. Each chapter ends with exercises that let you test your understanding and help you elaborate on the chapter's main concepts. Everything you need to understand waterfall, Sashimi, agile, RAD, Scrum, Kanban, Extreme Programming, and many other development models is inside! Describes in plain English what software engineering is Explains the roles and responsibilities of team members working on a software engineering project Outlines key phases that any software engineering effort must handle to produce applications that are powerful and dependable Details the most popular software development methodologies and explains the different ways they handle critical development tasks Incorporates exercises that expand upon each chapter's main ideas Includes an extensive glossary of software engineering terms

Software Engineering

New software firms and groups are eager to get their products to market. Even small successes and few customers make these companies grow in size. Resources are usually tight, processes are light, lots of code is written for demos and new people are hired on all the time. In such an environment, it is easy to go astray fast, even for experienced people. This book identifies the things that make for a successful software development organization and provides some solutions and tools to successfully bootstrap a software development group and keep it running efficiently as it grows big. The individual ideas in the article have been tried and tested over many projects and in various companies. The book brings together these ideas in an easy to reference package, provides links to commonly used freeware and inexpensive tools. It also provides some guidelines on how common development practices can be tailored to suit specific needs.

Docs Like Code

For courses in software engineering and software reliability, this title takes a systematic approach to consistently successful software development.

Software Engineering 3

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

The final installment in this three-volume set is based on this maxim: "Before software can be designed its requirements must be well understood, and before the requirements can be expressed properly the domain of the application must be well understood." The book covers the process from the development of domain descriptions, through the derivation of requirements prescriptions from domain models, to the refinement of requirements into software architectures and component design.

Software Development Techniques for Constructive Information Systems Design

Requirements Engineering and Management for Software Development Projects

Software project management. Software development overview. Planning the project. Managing the project. The software development processes. Preliminary design phase. Detailed design phase. The implementation and operation phase. The testing process. Software configuration management.

The Future of Software Engineering

Looking for a way to invigorate your technical writing team and grow that expertise to include developers, designers, and writers of all backgrounds? When you treat docs like code, you multiply everyone's efforts and streamline processes through collaboration, automation, and innovation. Second edition now available with updates and more information about version control for documents and continuous publishing.

Systems and Software Development, Modeling, and Analysis: New Perspectives and Methodologies

This is the digital version of the printed book (Copyright © 1996). Written in a remarkably clear style, *Creating a Software Engineering Culture* presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegers promotes the tactical changes required to support process improvement and high-quality software development. Throughout the text, Wiegers identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called "What to Do on Monday"), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality, and much more! Principles from Part 1: Never let your boss or your customer talk you into doing a bad job. People need to feel the work they do is appreciated. Ongoing education is every team member's responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding: Do this

once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma.

Dynamic Documents with R and knitr

Evaluates the Health Care Financing Admin's (HCFA) acquisition of its Medicare Transaction System (MTS). Specifically addresses the extent to which HCFA is effectively managing its interim Medicare processing environment, is using required practices to manage MTS as an investment, & is applying sound system development processes to reduce risk. Makes several recommendations that could help HCFA effectively meet its Medicare info. technology needs & decrease the risk of costly technological decisions & wasted Fed. expenditures that are often associated with large Fed. info. technology projects.

Advances in Software Engineering

This coherently written book is the final report on the IPSEN project on Integrated Software Project Support Environments devoted to the integration of tools for the development and maintenance of large software systems. The theoretical and application-oriented findings of this comprehensive project are presented in the following chapters: Overview: introduction, classification, and global approach; The outside perspective: tools, environments, their integration, and user interface; Internal conceptual modeling: graph grammar specifications; Realization: derivation of efficient tools, Current and future work, open problems; Conclusion: summary, evaluation, and vision. Also included is a comprehensive bibliography listing more than 1300 entries and a detailed index.

Developing Performance Support for Computer Systems

This is the digital version of the printed book (Copyright © 2004). Who Says Large Teams Can't Handle Agile Software Development? Agile or "lightweight" processes have revolutionized the software development industry. They're faster and more efficient than traditional software development processes. They enable developers to embrace requirement changes during the project deliver working software in frequent iterations focus on the human factor in software development Unfortunately, most agile processes are designed for small or mid-sized software development projects—bad news for large teams that have to deal with rapid changes to requirements. That means all large teams! With Agile Software Development in the Large, Jutta Eckstein—a leading speaker and consultant in the agile community—shows how to scale agile processes to teams of up to 200. The same techniques are also relevant to teams of as few as 10 developers, especially within large

organizations. Topics include the agile value system as used in large teams the impact of a switch to agile processes the agile coordination of several sub-teams the way project size and team size influence the underlying architecture Stop getting frustrated with inflexible processes that cripple your large projects! Use this book to harness the efficiency and adaptability of agile software development. Stop getting frustrated with inflexible processes that cripple your large projects! Use this book to harness the efficiency and adaptability of agile software development.

Managing Software Development

Software documentation forms the basis for all communication relating to a software project. To be truly effective and usable, it should be based on what needs to be known. Agile Documentation provides sound advice on how to produce lean and lightweight software documentation. It will be welcomed by all project team members who want to cut out the fat from this time consuming task. Guidance given in pattern form, easily digested and cross-referenced, provides solutions to common problems. Straightforward advice will help you to judge: What details should be left in and what left out When communication face-to-face would be better than paper or online How to adapt the documentation process to the requirements of individual projects and build in change How to organise documents and make them easily accessible When to use diagrams rather than text How to choose the right tools and techniques How documentation impacts the customer Better than offering pat answers or prescriptions, this book will help you to understand the elements and processes that can be found repeatedly in good project documentation and which can be shaped and designed to address your individual circumstance. The author uses real-world examples and utilises agile principles to provide an accessible, practical pattern-based guide which shows how to produce necessary and high quality documentation.

Creating a Software Engineering Culture

Freely available source code, with contributions from thousands of programmers around the world: this is the spirit of the software revolution known as Open Source. Open Source has grabbed the computer industry's attention. Netscape has opened the source code to Mozilla; IBM supports Apache; major database vendors have ported their products to Linux. As enterprises realize the power of the open-source development model, Open Source is becoming a viable mainstream alternative to commercial software. Now in Open Sources, leaders of Open Source come together for the first time to discuss the new vision of the software industry they have created. The essays in this volume offer insight into how the Open Source movement works, why it succeeds, and where it is going. For programmers who have labored on open-source projects, Open Sources is the new gospel: a powerful vision from the movement's spiritual leaders. For businesses integrating open-source software into their enterprise, Open Sources reveals the mysteries of how open development builds better software, and how businesses can leverage freely available software for a competitive business advantage. The contributors here have

been the leaders in the open-source arena: Brian Behlendorf (Apache) Kirk McKusick (Berkeley Unix) Tim O'Reilly (Publisher, O'Reilly & Associates) Bruce Perens (Debian Project, Open Source Initiative) Tom Paquin and Jim Hamerly (mozilla.org, Netscape) Eric Raymond (Open Source Initiative) Richard Stallman (GNU, Free Software Foundation, Emacs) Michael Tiemann (Cygnus Solutions) Linus Torvalds (Linux) Paul Vixie (Bind) Larry Wall (Perl) This book explains why the majority of the Internet's servers use open- source technologies for everything from the operating system to Web serving and email. Key technology products developed with open-source software have overtaken and surpassed the commercial efforts of billion dollar companies like Microsoft and IBM to dominate software markets. Learn the inside story of what led Netscape to decide to release its source code using the open-source mode. Learn how Cygnus Solutions builds the world's best compilers by sharing the source code. Learn why venture capitalists are eagerly watching Red Hat Software, a company that gives its key product -- Linux -- away. For the first time in print, this book presents the story of the open- source phenomenon told by the people who created this movement. Open Sources will bring you into the world of free software and show you the revolution.

Successful Software Development

In the digital age, technological solutions are being developed and integrated into every aspect of our everyday lives. The ever-changing scope of research in systems and software advancements allows for further improvements and applications. Systems and Software Development, Modeling, and Analysis: New Perspectives and Methodologies presents diverse, interdisciplinary research on topics pertaining to the management, integration, evaluation, and architecture of modern computational systems and software. Presenting the most up-to-date research in this rapidly evolving field, this title is ideally designed for use by computer engineers, academicians, graduate and post-graduate students, and computer science researchers.

Android Wireless Application Development, Portable Documents

"This book presents cutting-edge research and analysis of the most recent advancements in the fields of database systems and software development"--Provided by publisher.

Encyclopedia of Software Engineering Three-Volume Set (Print)

This book focuses on defining the achievements of software engineering in the past decades and showcasing visions for the future. It features a collection of articles by some of the most prominent researchers and technologists who have shaped the field: Barry Boehm, Manfred Broy, Patrick Cousot, Erich Gamma, Yuri Gurevich, Tony Hoare, Michael A. Jackson, Rustan

Leino, David L. Parnas, Dieter Rombach, Joseph Sifakis, Niklaus Wirth, Pamela Zave, and Andreas Zeller. The contributed articles reflect the authors' individual views on what constitutes the most important issues facing software development. Both research- and technology-oriented contributions are included. The book provides at the same time a record of a symposium held at ETH Zurich on the occasion of Bertrand Meyer's 60th birthday.

Agile Software Development in the Large

The start-to-finish guide to Android application development: massively updated for the newest SDKs and developer techniques! This book delivers all the up-to-date information, tested code, and best practices you need to create and market successful mobile apps with the latest versions of Android. Drawing on their extensive experience with mobile and wireless development, Lauren Darcey and Shane Conder cover every step: concept, design, coding, testing, packaging, and delivery. The authors introduce the Android platform, explain the principles of effective Android application design, and present today's best practices for crafting effective user interfaces. Next, they offer detailed coverage of each key Android API, including data storage, networking, telephony, location-based services, multimedia, 3D graphics, and hardware. Every chapter of this edition has been updated for the newest Android SDKs, tools, utilities, and hardware. All sample code has been overhauled and tested on leading devices from multiple companies, including HTC, Motorola, and ARCHOS. Many new examples have been added, including complete new applications. This new edition also adds Nine new chapters covering web APIs, the Android NDK, extending application reach, managing users, data synchronization, backups, advanced user input, and more Greatly expanded coverage of Android manifest files, content providers, app design, and testing New coverage of hot topics like Bluetooth, gestures, voice recognition, App Widgets, live folders, live wallpapers, and global search Updated 3D graphics programming coverage reflecting OpenGL ES 2.0 An all-new chapter on tackling cross-device compatibility issues, from designing for the smallest phones to the big new tablets hitting the market Even more tips and tricks to help you design, develop, and test applications for different devices A new appendix full of Eclipse tips and tricks This book is an indispensable resource for every member of the Android development team: software developers with all levels of mobile experience, team leaders and project managers, testers and QA specialists, software architects, and even marketers.

New Software Engineering Paradigm Based on Complexity Science

This book constitutes the refereed proceedings of the First European Conference on Software Architecture, ECSA 2007, held in Aranjuez, Spain, September 24-26, 2007. The 12 revised long papers presented together with 4 short papers were carefully reviewed and selected from 62 submissions. Topics include description languages and metamodels, architecture-based code generation, run-time monitoring, requirements engineering, service-oriented architectures, aspect-oriented

software architectures, ontology-based approaches, autonomic systems, middleware and web services.

Trustworthy Software Development Processes

This introduction to software engineering and practice addresses both procedural and object-oriented development. Is thoroughly updated to reflect significant changes in software engineering, including modeling and agile methods. Emphasizes essential role of modeling design in software engineering. Applies concepts consistently to two common examples a typical information system and a real-time system. Combines theory with real, practical applications by providing an abundance of case studies and examples from the current literature. A useful reference for software engineers.

Documenting Software Architectures

Software engineering requires specialized knowledge of a broad spectrum of topics, including the construction of software and the platforms, applications, and environments in which the software operates as well as an understanding of the people who build and use the software. Offering an authoritative perspective, the two volumes of the Encyclopedia of Software Engineering cover the entire multidisciplinary scope of this important field. More than 200 expert contributors and reviewers from industry and academia across 21 countries provide easy-to-read entries that cover software requirements, design, construction, testing, maintenance, configuration management, quality control, and software engineering management tools and methods. Editor Phillip A. Laplante uses the most universally recognized definition of the areas of relevance to software engineering, the Software Engineering Body of Knowledge (SWEBOK®), as a template for organizing the material. Also available in an electronic format, this encyclopedia supplies software engineering students, IT professionals, researchers, managers, and scholars with unrivaled coverage of the topics that encompass this ever-changing field. Also Available Online This Taylor & Francis encyclopedia is also available through online subscription, offering a variety of extra benefits for researchers, students, and librarians, including: Citation tracking and alerts Active reference linking Saved searches and marked lists HTML and PDF format options Contact Taylor and Francis for more information or to inquire about subscription options and print/online combination packages. US: (Tel) 1.888.318.2367; (E-mail) e-reference@taylorandfrancis.com International: (Tel) +44 (0) 20 7017 6062; (E-mail) online.sales@tandf.co.uk

Agile Documentation

This classroom-tested textbook presents an active-learning approach to the foundational concepts of software design. These concepts are then applied to a case study, and reinforced through practice exercises, with the option to follow either a structured design or object-oriented design paradigm. The text applies an incremental and iterative software

development approach, emphasizing the use of design characteristics and modeling techniques as a way to represent higher levels of design abstraction, and promoting the model-view-controller (MVC) architecture. Topics and features: provides a case study to illustrate the various concepts discussed throughout the book, offering an in-depth look at the pros and cons of different software designs; includes discussion questions and hands-on exercises that extend the case study and apply the concepts to other problem domains; presents a review of program design fundamentals to reinforce understanding of the basic concepts; focuses on a bottom-up approach to describing software design concepts; introduces the characteristics of a good software design, emphasizing the model-view-controller as an underlying architectural principle; describes software design from both object-oriented and structured perspectives; examines additional topics on human-computer interaction design, quality assurance, secure design, design patterns, and persistent data storage design; discusses design concepts that may be applied to many types of software development projects; suggests a template for a software design document, and offers ideas for further learning. Students of computer science and software engineering will find this textbook to be indispensable for advanced undergraduate courses on programming and software design. Prior background knowledge and experience of programming is required, but familiarity in software design is not assumed.

New Trends in Software Methodologies, Tools, and Techniques

This book describes a complete revolution in software engineering based on complexity science through the establishment of NSE - Nonlinear Software Engineering paradigm which complies with the essential principles of complexity science, including the Nonlinearity principle, the Holism principle, the Complexity Arises From Simple Rules principle, the Initial Condition Sensitivity principle, the Sensitivity to Change principle, the Dynamics principle, the Openness principle, the Self-organization principle, and the Self-adaptation principle. The aims of this book are to offer revolutionary solutions to solve the critical problems existing with the old-established software engineering paradigm based on linear thinking and simplistic science complied with the superposition principle, and make it possible to help software development organizations double their productivity, halve their cost, and remove 99% to 99.99% of the defects in their software products, and efficiently handle software complexity, conformity, visibility, and changeability. It covers almost all areas in software engineering. The tools NSE_CLICK- an automatic acceptance testing platform for outsourcing (or internally developed) C/C++ products, and NSE_CLICK_J - an automatic acceptance testing platform for outsourcing (or internally developed) Java products are particularly designed for non-technical readers to view/review how the acceptance testing of a software product developed with NSE can be performed automatically, and how the product developed with NSE is truly maintainable at the customer site.

Knowledge-Based Software Engineering

Requirements Engineering and Management for Software Development Projects presents a complete guide on requirements for software development including engineering, computer science and management activities. It is the first book to cover all aspects of requirements management in software development projects. This book introduces the understanding of the requirements, elicitation and gathering, requirements analysis, verification and validation of the requirements, establishment of requirements, different methodologies in brief, requirements traceability and change management among other topics. The best practices, pitfalls, and metrics used for efficient software requirements management are also covered. Intended for the professional market, including software engineers, programmers, designers and researchers, this book is also suitable for advanced-level students in computer science or engineering courses as a textbook or reference.

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