

Software Engineering Textbook By Pankaj Jalote

Big Data is everywhere. It shapes our lives in more ways than we know and understand. This comprehensive introduction unravels the complex terabytes that will continue to shape our lives in ways imagined and unimagined. Drawing on case studies like Amazon, Facebook, the FIFA World Cup and the Aadhaar scheme, this book looks at how Big Data is changing the way we behave, consume and respond to situations in the digital age. It looks at how Big Data has the potential to transform disaster management and healthcare, as well as prove to be authoritarian and exploitative in the wrong hands. The latest offering from the authors of *Artificial Intelligence: Evolution, Ethics and Public Policy*, this accessibly written volume is essential for the researcher in science and technology studies, media and culture studies, public policy and digital humanities, as well as being a beacon for the general reader to make sense of the digital age. The goal of this book is to introduce to the students a limited number of concepts and practices which will achieve the following two objectives: Teach the student the skills needed to execute a smallish commercial project. Provide the students necessary conceptual background for undertaking advanced studies in software engineering, through organized courses or on their own. This book focuses on key tasks in two dimensions - engineering and project management - and discusses concepts and techniques that can be applied to effectively execute these tasks. The book is organized in a simple manner, with one chapter for each of the key tasks in a project. For engineering, these tasks are requirements analysis and specification, architecture design, module level design, coding and unit testing, and testing. For project management, the key tasks are project planning and project monitoring and control, but both are discussed together in one chapter on project planning as even monitoring has to be planned. In addition, one chapter clearly defines the problem domain of Software Engineering, and another Chapter discusses the central concept of software process which integrates the different tasks executed in a project. Each chapter opens with some introduction and clearly lists the chapter goals, or what the reader can expect to learn from the chapter. For the task covered in the chapter, the important concepts are first discussed, followed by a discussion of the output of the task, the desired quality properties of the output, and some practical methods and notations for performing the task. The explanations are supported by examples, and the key learnings are summarized in the end for the reader. The chapter ends with some self-assessment exercises. Finally, the book contains a question bank at the end which lists out questions with answers from major universities.

Project initiation; Project planning; Project execution and termination.

Call centers today have emerged as not only a biggest employer but also as a dynamic industry. Everyday thousands of people become part of this growing fraternity. This book helps in unveiling the hidden secrets of this industry from a practical perspective. It tries to cover the latest trends, happenings and the changes happening in this industry.

A catalog of solutions to commonly occurring design problems, presenting 23 patterns that allow designers to create flexible and reusable designs for object-oriented software. Describes the circumstances in which each pattern is applicable, and discusses the consequences and trade-offs of using the pattern within a larger design. Patterns are compiled from real systems, and include code for implementation in object-oriented programming languages like C++ and Smalltalk. Includes a bibliography. Annotation copyright by Book News, Inc., Portland, OR
Extensively revised and updated, with the addition of new chapters and authors, this long-awaited second edition covers all aspects of clinical data management. Giving details of the efficient clinical data management procedures required to satisfy both corporate objectives and quality audits by regulatory authorities, this text is timely and an important contribution to the literature. The volume: * is written by well-known and experienced authors in this area * provides new approaches to major topics in clinical data management * contains new chapters on systems software validation, database design and performance measures. It will be invaluable to anyone in the field within the pharmaceutical industry, and to all biomedical professionals working in clinical research.

For the new millennium, Wai-Kai Chen introduced a monumental reference for the design, analysis, and prediction of VLSI circuits: *The VLSI Handbook*. Still a valuable tool for dealing with the most dynamic field in engineering, this second edition includes 13 sections comprising nearly 100 chapters focused on the key concepts, models, and equations. Written by a stellar international panel of expert contributors, this handbook is a reliable, comprehensive resource for real answers to practical problems. It emphasizes fundamental theory underlying professional applications and also reflects key areas of industrial and research focus. WHAT'S IN THE SECOND EDITION? Sections on... Low-power electronics and design VLSI signal processing Chapters on... CMOS fabrication Content-addressable memory Compound semiconductor RF circuits High-speed circuit design principles SiGe HBT technology Bipolar junction transistor amplifiers Performance modeling and analysis using SystemC Design languages, expanded from two chapters to twelve Testing of digital systems Structured for convenient navigation and loaded with practical solutions, *The VLSI Handbook, Second Edition* remains the first choice for answers to the problems and challenges faced daily in engineering practice.

Uncovers the growing and expanding phenomenon of human behavior, social constructs, and communication in online environments.

This book features high-quality, peer-reviewed research papers presented at the First International Conference on Computer Science, Engineering and Education Applications (ICCSEEA2018), held in Kiev, Ukraine on 18–20 January 2018, and organized jointly by the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” and the International Research Association of Modern Education and Computer Science. The state-of-the-art papers discuss topics in computer science, such as neural networks, pattern recognition, engineering techniques, genetic coding systems, deep learning with its medical applications, as well as knowledge representation and its applications in education. It is an excellent reference resource for researchers, graduate students, engineers, management practitioners, and undergraduate students interested in computer science and their applications in engineering and education.

This book is for engineers and researchers working in the embedded hardware industry. This book addresses the design aspects of cryptographic hardware and embedded software. The authors provide tutorial-type material for professional engineers and computer information specialists.

An Integrated Approach to Software Engineering Springer Science & Business Media

An introduction to software engineering with the emphasis 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. Similarly, the author carefully introduces appropriate metrics for controlling and

assessing the software process. Intended for students who have had no previous training in software engineering, this book is suitable for a one semester course.

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.

This new volume is devoted to molecular chemistry and its applications to the fields of biology. It looks at the integration of molecular chemistry with biomolecular engineering, with the goal of creating new biological or physical properties to address scientific or societal challenges. It takes a both multidisciplinary and interdisciplinary perspective on the interface between molecular biology, biophysical chemistry, and chemical engineering. Molecular Chemistry and Biomolecular Engineering: Integrating Theory and Research with Practice provides effective support for the development of the laboratory and data analysis skills that researchers will draw on time and again for the practical aspects and also gives a solid grounding in the broader transferable skills.

This book discusses a number of intelligent algorithms which are being developed and explored for the next-generation communication systems. These include algorithms enabled with artificial intelligence, machine learning, artificial neural networks, reinforcement learning, fuzzy logic, swarm intelligence and cognitive capabilities. The book provides a comprehensive and insightful understanding of these algorithms, in context with their applications developed recently and also for immediate future communication technologies. It also covers the topics on how to develop intelligent algorithms for computing functionality in the end-to-end networking platforms. Moreover, the book also covers the recent developments, open technological challenges and future directions in the areas of data analysis, applications of the game theory, autonomous entities, evolutionary computation, smart ubiquitous computing and intelligent architectures with major focus on communication technologies and computing platforms.

Student-Friendly Coverage of Probability, Statistical Methods, Simulation, and Modeling Tools Incorporating feedback from instructors and researchers who used the previous edition, Probability and Statistics for Computer Scientists, Second Edition helps students understand general methods of stochastic modeling, simulation, and data analysis; make o

With the emergence of global university rankings, there is increased interest in research universities. The focus of the higher education system in India has traditionally been on educating students and not on research. However, in the last decade or so, there has been a growing appreciation of research in universities and interest in transforming some of the Indian universities to globally competitive research universities. This is the first book that focuses on building research universities in India. It provides a comprehensive and holistic view of a research university and discusses the key dimensions of such a university, including education, research, PhD programme, faculty management, governance, financing and third mission. This book will be of interest to academicians, academic leaders, policymakers, and those who are involved in developing a university in India.

The corporate market is now embracing free, "open source" software like never before, as evidenced by the recent success of the technologies underlying LAMP (Linux, Apache, MySQL, and PHP). Each is the result of a publicly collaborative process among numerous developers who volunteer their time and energy to create better software. The truth is, however, that the overwhelming majority of free software projects fail. To help you beat the odds, O'Reilly has put together Producing Open Source Software, a guide that recommends tried and true steps to help free software developers work together toward a common goal. Not just for developers who are considering starting their own free software project, this book will also help those who want to participate in the process at any level. The book tackles this very complex topic by distilling it down into easily understandable parts. Starting with the basics of project management, it details specific tools used in free software projects, including version control, IRC, bug tracking, and Wikis. Author Karl Fogel, known for his work on CVS and Subversion, offers practical advice on how to set up and use a range of tools in combination with open mailing lists and archives. He also provides several chapters on the essentials of recruiting and motivating developers, as well as how to gain much-needed publicity for your project. While managing a team of enthusiastic developers -- most of whom you've never even met -- can be challenging, it can also be fun. Producing Open Source Software takes this into account, too, as it speaks of the sheer pleasure to be had from working with a motivated team of free software developers.

Astronomy is the field of science devoted to the study of astronomical objects, such as stars, galaxies, and nebulae. Astronomers have gathered a wealth of knowledge about the universe through hundreds of years of painstaking observations. These observations are interpreted by the use of physical and chemical laws familiar to mankind. These interpr

An Introduction to Parallel Programming, Second Edition presents a tried-and-true tutorial approach that shows students how to develop effective parallel programs with MPI, Pthreads and OpenMP. As the first undergraduate text to directly address compiling and running parallel programs on multi-core and cluster architecture, this second edition carries forward its clear explanations for designing, debugging and evaluating the performance of distributed and shared-memory programs while adding coverage of accelerators via new content on GPU programming and heterogeneous programming. New and improved user-friendly exercises teach students how to compile, run and modify example programs. Takes a tutorial approach, starting with small programming examples and building progressively to more challenging examples Explains how to develop parallel programs using MPI, Pthreads and OpenMP programming models A robust package of online ancillaries for instructors and students includes lecture slides, solutions manual, downloadable source code, and an image bank New to this edition: New chapters on GPU programming and heterogeneous programming New examples and exercises

related to parallel algorithms

The Victorian period, viewed in the West as a time of self-confident progress, was experienced by Asians as a catastrophe. As the British gunned down the last heirs to the Mughal Empire, burned down the Summer Palace in Beijing, or humiliated the bankrupt rulers of the Ottoman Empire, it was clear that for Asia to recover a vast intellectual effort would be required. Pankaj Mishra's fascinating, highly entertaining new book tells the story of a remarkable group of men from across the continent who met the challenge of the West. Incessantly travelling, questioning and agonising, they both hated the West and recognised that an Asian renaissance needed to be fuelled in part by engagement with the enemy. Through many setbacks and wrong turns, a powerful, contradictory and ultimately unstoppable series of ideas were created that now lie behind everything from the Chinese Communist Party to Al Qaeda, from Indian nationalism to the Muslim Brotherhood. Mishra allows the reader to see the events of two centuries anew, through the eyes of the journalists, poets, radicals and charismatics who criss-crossed Europe and Asia and created the ideas which lie behind the powerful Asian nations of the twenty-first century. Sustainable world economy requires a steady supply of crude oil without any production constraints. Thus, the ever-increasing energy demand of the entire world can be mostly met through the enhanced production from crude oil from existing reservoirs. With the fact that newer reservoirs with large quantities of crude oil could not be explored at a faster pace, it will be inevitable to produce the crude oil from matured reservoirs at an affordable cost. Among alternate technologies, the chemical enhanced oil recovery (EOR) technique has promising potential to recover residual oil from matured reservoirs being subjected to primary and secondary water flooding operations. Due to pertinent complex phenomena that often have a combinatorial role and influence, the implementation of chemical EOR schemes such as alkali/surfactant/polymer flooding and their combinations necessitates upon a fundamental understanding of the potential mechanisms and their influences upon one another and desired response variables. Addressing these issues, the book attempts to provide useful screening criteria, guidelines, and rules of thumb for the identification of process parametric sets (including reservoir characteristics) and response characteristics (such as IFT, adsorption etc.) that favor alternate chemical EOR systems. Finally, the book highlights the relevance of nanofluid/nanoparticle for conventional and unconventional reservoirs and serves as a needful resource to understand the emerging oil recovery technology. Overall, the volume will be of greater relevance for practicing engineers and consultants that wish to accelerate on field applications of chemical and nano-fluid EOR systems. Further, to those budding engineers that wish to improvise upon their technical know-how, the book will serve as a much-needed repository.

This text discusses simulation process for circuits including clamper, voltage and current divider, transformer modeling, transistor as an amplifier, transistor as a switch, MOSFET modeling, RC and LC filters, step and impulse response to RL and RC circuits, amplitude modulator in a step-by-step manner for more clarity and understanding to the readers. It covers electronic circuits like rectifiers, RC filters, transistor as an amplifier, operational amplifiers, pulse response to a series RC circuit, time domain simulation with a triangular input signal, and modulation in detail. The text presents issues that occur in practical implementation of various electronic circuits and assist the readers in finding solutions to those issues using the software. Aimed at undergraduate, graduate students, and academic researchers in the areas including electrical and electronics and communications engineering, this book: Discusses simulation of analog circuits and their behavior for different parameters. Covers AC/DC circuit modeling using regular and parametric sweep methods. The theory will be augmented with practical electrical circuit examples that will help readers to better understand the topic. Discusses circuits like rectifiers, RC filters, transistor as an amplifier, and operational amplifiers in detail.

Pre-eclampsia, a complication of pregnancy characterized by hypertension and/or edema and/or proteinuria, can have profound effects on the mother as well as the unborn fetus and even threaten their lives. Pre-eclampsia: Prevention, Prediction and Possibilities discusses the possible causes of the condition, its effects on various body systems, current methods of prediction, prevention, and treatment. What makes this book unique is its coverage of the deep intricacies of what causes Pre-eclampsia from examining the role of genetics and exosomes to lipids and their denaturation to endothelial denaturation and reperfusion damage. These extremely complex processes are thoroughly examined and then explained in a simplified way to enhance understanding. The latest concepts in color Doppler in prediction and current measures of prevention and treatment are explained at length. Overall, Pre-eclampsia will provide an updated resource for practicing obstetricians, research scientists, students and professionals involved in the care of pregnant subjects. Key Features Presents the etiopathology of Pre-eclampsia with recent research updates Establishes the link between Pre-eclampsia and other obstetric vasculopathies Covers individual systemic effects of the condition Explores the latest approach in prediction, prevention and treatment of Pre-eclampsia About the Author Dr. Pankaj Desai is a Consultant Obstetrics and Gynecology Specialist at Janani Maternity Hospital, Baroda, India. A prolific writer, he has contributed 43 chapters to different textbooks internationally and nationally. His outstanding academic contributions in the subject have been acknowledged and honored with 7 gold medals and 60 orations.

For courses in Software Engineering, Software Development, or Object-Oriented Design and Analysis at the Junior/Senior or Graduate level. This text can also be utilized in short technical courses or in short, intensive management courses. Shows students how to use both the principles of software engineering and the practices of various object-oriented tools, processes, and products. Using a step-by-step case study to illustrate the concepts and topics in each chapter, Bruegge and Dutoit emphasize learning object-oriented software engineer through practical experience: students can apply the techniques learned in class by implementing a real-world software project. The third edition addresses new trends, in particular agile project management (Chapter 14 Project Management) and agile methodologies (Chapter 16 Methodologies).

This essential textbook presents a concise introduction to the fundamental principles of software engineering, together with practical guidance on how to apply the theory in a real-

world, industrial environment. The wide-ranging coverage encompasses all areas of software design, management, and quality. Topics and features: presents a broad overview of software engineering, including software lifecycles and phases in software development, and project management for software engineering; examines the areas of requirements engineering, software configuration management, software inspections, software testing, software quality assurance, and process quality; covers topics on software metrics and problem solving, software reliability and dependability, and software design and development, including Agile approaches; explains formal methods, a set of mathematical techniques to specify and derive a program from its specification, introducing the Z specification language; discusses software process improvement, describing the CMMI model, and introduces UML, a visual modelling language for software systems; reviews a range of tools to support various activities in software engineering, and offers advice on the selection and management of a software supplier; describes such innovations in the field of software as distributed systems, service-oriented architecture, software as a service, cloud computing, and embedded systems; includes key learning topics, summaries and review questions in each chapter, together with a useful glossary. This practical and easy-to-follow textbook/reference is ideal for computer science students seeking to learn how to build high quality and reliable software on time and on budget. The text also serves as a self-study primer for software engineers, quality professionals, and software managers.

Covers important concepts, issues, trends, methodologies, and technologies in quality assurance for model-driven software development.

An introductory course on Software Engineering remains one of the hardest subjects to teach largely because of the wide range of topics the area encompasses. I have believed for some time that we often tend to teach too many concepts and topics in an introductory course resulting in shallow knowledge and little insight on application of these concepts. And Software Engineering is really about application of concepts to efficiently engineer good software solutions. Goals I believe that an introductory course on Software Engineering should focus on imparting to students the knowledge and skills that are needed to successfully execute a commercial project of a few person-months effort while employing proper practices and techniques. It is worth pointing out that a vast majority of the projects executed in the industry today fall in this scope—executed by a small team over a few months. I also believe that by carefully selecting the concepts and topics, we can, in the course of a semester, achieve this. This is the motivation of this book. The goal of this book is to introduce to the students a limited number of concepts and practices which will achieve the following two objectives: – Teach the student the skills needed to execute a smallish commercial project.

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

Emerging Technologies in Computing: Theory, Practice, and Advances reviews the past, current, and future needs of technologies in the computer science field while it also discusses the emerging importance of appropriate practices, advances, and their impact. It outlines emerging technologies and their principles, challenges, and applications as well as issues involved in the digital age. With the rapid development of technologies, it becomes increasingly important for us to remain up to date on new and emerging technologies. It draws a clear illustration for all those who have a strong interest in emerging computing technologies and their impacts on society. Features: Includes high-quality research work by academicians and industrial experts in the field of computing Offers case studies related to Artificial Intelligence, Blockchain, Internet of Things, Multimedia Big Data, Blockchain, Augmented Reality, Data Science, Robotics, Cybersecurity, 3D Printing, Voice Assistants and Chatbots, and Future Communication Networks Serves as a valuable reference guide for anyone seeking knowledge about where future computing is heading

"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside computer applications to develop efficient and precise information databases. Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as utility computing, computer security, and information systems applications, this multi-volume book is ideally designed for academicians, researchers, students, web designers, software developers, and practitioners interested in computer systems and software engineering.

It is clear that the development of large software systems is an extremely complex activity, which is full of various opportunities to introduce errors. Software engineering is the discipline that provides methods to handle this complexity and enables us to produce reliable software systems with maximum productivity. An Integrated Approach to Software Engineering is different from other approaches because the various topics are not covered in isolation. A running case study is employed throughout the book, illustrating the different activity of software development on a single project. This work is important and instructive because it not only teaches the principles of software engineering, but also applies them to a software development project such that all aspects of development can be clearly seen on a project. This comprehensive and well-organized book presents the concepts and principles of earthquake resistant design of structures in an easy-to-read style. The use of these principles helps in the implementation of seismic design practice. The book adopts a step-by-step approach, starting from the fundamentals of structural dynamics to application of seismic codes in analysis and design of structures. The text also focusses on seismic evaluation and retrofitting of reinforced concrete and masonry buildings. The text has been enriched with a large number of diagrams and solved problems to reinforce the understanding

of the concepts. Intended mainly as a text for undergraduate and postgraduate students of civil engineering, this text would also be of considerable benefit to practising engineers, architects, field engineers and teachers in the field of earthquake resistant design of structures.

A wide-ranging, controversial collection of critical essays on the political mania plaguing the West by one of the most important public intellectuals of our time. In America and in England, faltering economies at home and failed wars abroad have generated a political and intellectual hysteria. It is a derangement manifested in a number of ways: nostalgia for imperialism, xenophobic paranoia, and denunciations of an allegedly intolerant left. These symptoms can be found even among the most informed of Anglo-America. In *Bland Fanatics*, Pankaj Mishra examines the politics and culture of this hysteria, challenging the dominant establishment discourses of our times. In essays that grapple with the meaning and content of Anglo-American liberalism and its relations with colonialism, the global South, Islam, and “humanitarian” war, Mishra confronts writers such as Jordan Peterson, Niall Ferguson, and Salman Rushdie. He describes the doubling down of an intelligentsia against a background of weakening Anglo-American hegemony, and he explores the commitments of Ta-Nehisi Coates and the ideological determinations of *The Economist*. These essays provide a vantage point from which to understand the current crisis and its deep origins.

The Book Covering The Various Aspects Of Software Engineering Takes Come Of The Entire Curriculum As Target In Most Indian And Foreign Universities. Useful For The Students And Practioners Of Software Engineering.

Water-Resources Engineering provides comprehensive coverage of hydraulics, hydrology, and water-resources planning and management. Presented from first principles, the material is rigorous, relevant to the practice of water resources engineering, and reinforced by detailed presentations of design applications. Prior knowledge of fluid mechanics and calculus (up to differential equations) is assumed.

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