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TEXTBOOK OF COMPUTER SCIENCE FOR CLASS XI
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Problem Solving and Critical Thinking for Computer Science Educators
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Programming and Problem Solving with ADA
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Computational Modeling and Problem Solving in the Networked World
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Java

Computational Modeling and Problem Solving in the Networked World
2019 This book is a compilation of a selected subset of research articles presented at the Eighth INFORMS Computing Society Conference, held in Chandler, Arizona, from January 8 to 10, 2003. The articles in this book represent the diversity and depth of the interface between ORiMS (operations research and the management sciences) and CS/AI (computer science and artificial intelligence). This volume starts with two papers that represent the reflective and integrative thinking that is critical to any scientific discipline. These two articles present philosophical perspectives on computation, covering a variety of traditional and newer methods for modeling, solving, and explaining mathematical models. The next set includes articles that study machine learning and computational heuristics, and is followed by articles that address issues in performance testing of solution algorithms and heuristics. These two sets of papers demonstrate the richness of thought that takes place at the ORiMS and CSI AI interface. The final set of articles demonstrates the usefulness of these and other methods at the interface towards solving problems in the real world, covering e-commerce, workflow, electronic negotiation, music, parallel computation, and telecommunications. The articles in this collection represent the results of cross-fertilization between ORiMS and CSI AI, making possible advances that could have not been achieved in isolation. The continuing aim of the INFORMS Computing Society and this research conference is to invigorate and further develop this interface.

Trends, Techniques, and Problems in Theoretical Computer Science
17 2022 Aerodynamics and hydrodynamics are still the main domains that make greater use of flow visualization and classical optical techniques such as schlieren and interferometry than of more recent techniques such as holography speckle, laser light sheets, laser-induced tracers and laser-induced fluorescence. A number of studies are now under way on turbulent and vortex flows, within boundary layer wakes, in the mixing layer of two flows. Other studies concern jets, two-phase flows and air-water interface. To review and discuss developments in flow visualization, four international symposia have been held. Following Tokyo, Bochum and Ann Arbor, the Fourth International Symposium on Flow Visualization (ISFV 4) was held in Paris in August 1986.

Introduction to Computer Science
May 21 2022 A comprehensive introduction to the CS1 and CS2 sequence, this text uses standard Pascal throughout, with a Turbo Pascal appendix page-referenced to specific examples. The text meets A.C.M. guidelines for CS1 and CS2, including complete coverage of structured programming and problem solving, as well as advanced programming techniques like using abstract data types, trees, stacks, and queues. Features patient development of procedures and parameters after loops and conditional statements.

TEXTBOOK OF COMPUTER SCIENCE FOR CLASS XI
Mar 27 2020 This textbook, presented in a clear and friendly writing style, provides students of Class XI with a thorough introduction to the discipline of computer science. It offers accurate and balanced coverage of all the computer science topics as prescribed in CBSE syllabus Code 083. Assuming no previous knowledge of computer science, this book discusses key computing concepts to provide invaluable insight into how computers work. It prepares students for the world of computing by giving them a solid foundation in programming concepts, operating systems, problem solving methodology, C++ programming language, data representation, and computer hardware. KEY FEATURES • Explains theory in user friendly and easy-to-approach style • Teaches C++ from scratch; knowledge of C is not needed • Provides Programming Examples • Gives Practical Exercise • Provides Answers to Short Questions • Gives Practice Questions at the end of each chapter • Suitable for Self-Study

Introduction to Computer Science Using Python
Feb 14 2021 Introduction to Computer Science Using Python: A Computational Problem-Solving Focus, recommended by Guido van Rossum, the creator of Python ("This is not your average Python book...I think this book is a great text for anyone teaching CS1"). With a focus on computational problem solving from Chapter 1, this text provides numerous hands-on exercises and examples, each chapter ending with significant-size program demonstrating the step-by-step process of program development, testing, and debugging. A final chapter includes the history of computing, starting with Charles Babbage, containing over 65 historical images. An end-of-book Python 3 Programmers' Reference is also included for quick lookup of Python details. Extensive instructor materials are provided for those adopting for classroom use, including an instructors' manual, over 1,000 well-developed slides covering all fundamental topics of each chapter, source code, and test bank.

Supply Chain Management and its Applications in Computer Science
Oct 22 2019 Supply chain management is a key topic for a large variety of strategic decision problems. It is essential in making efficient decisions related to the management of inventory and the delivery of final products to customers. The focus of this is the understanding of the supply chain taxonomy, the different levels of decision and the impact of one level on another depending on the modeling of the addressed objectives. The authors explore the potential problems that can be addressed within the supply chain, such as the inventory, the transportation and issues of holding, and find applications in numerous fields of study, from cloud computing and networking through to industrial sciences. The reader can find each issue described and its positioning in the supply chain determined. A computer science framework is also developed to show how the use of electronic platform can aid in the handling of these potential problems.

Problem Solving and Critical Thinking for Computer Science Educators
Jan 25 2020 The eight papers presented in this monograph are a result of the Problem Solving and Critical Thinking Research Workshop that was held in conjunction with the 1990 National Educational Computing Conference (NECC). The intent of the workshop was to provide a unique forum for researchers to share ideas in a special area of educational computing. The monograph provides an overview of the general issues of problem solving and critical thinking in education as well as specialized areas of interest in intelligent tutoring and program construction. The papers included in this monograph are: (1) "Problem Solving, Critical Thinking, and Computing: An Overview" (Cathleen A. Norris and James L. Poirot); (2) "Mindstorms' Revisited: Computers, Problem Solving, and Knowledge-based Instruction" (Karen Swan); (3) "Defining Programming and Logo as Vehicles for Developing Higher Order Thinking Skills" (Jim Dunne); (4) "Abstracted Knowledge: A Mid-Road Transfer Approach to Critical Thinking" (Clifton S. Harris); (5) "Resolving the Impasse in Software Engineering: Problem Solving in Program Construction" (Warren Moseley); (6) "Critical Thinking and Intelligent Tutoring Systems" (James T. Streib); (7) "Critical Thinking and Open Courseware" (Eduardo Rivera); and (8) "What Can We Learn from Each Other's Experiences?: Observations of a Research-Oriented Workshop by a Classroom Teacher" (Sylvia Robinson). References are included with most papers. (ALF)

Guide to Teaching Computer Science
Jul 11 2021 This guide presents both a conceptual framework and detailed implementation guidelines for general computer science (CS) teaching. The content is clearly written and structured to be applicable to all levels of CS education and for any teaching organization, without limit its focus to instruction for any specific curriculum, programming language or paradigm. Features: presents an overview of research in CS education; examines strategies for teaching problem-solving, evaluating pupils, and for dealing with pupils' misunderstandings; provides learning activities throughout the book; proposes active-learning-based classroom teaching methods, as well as methods specifically for lab-based teaching; discusses various types of questions that a CS instructor, tutor, or trainer can use for a range of different teaching situations; investigates thoroughly issues of lesson planning and course design; describes

frameworks by which prospective CS teachers gain their first teaching experience.

[Programming Challenges](#) Apr 27 2020 Presents a collection of more than one hundred programming challenges along with information on key theories and concepts in computer programming.

[Program Verification](#) Aug 12 2021 Among the most important problems confronting computer science is that of developing a paradigm appropriate to the discipline. Proponents of formal methods - such as John McCarthy, C.A.R. Hoare, and Edgar Dijkstra - have advanced the position that computing is a mathematical activity and that computer science should model itself after mathematics. Opponents of formal methods - by contrast, suggest that programming is the activity which is fundamental to computer science and that there are important differences that distinguish it from mathematics, which therefore cannot provide a suitable paradigm. Disagreement over the place of formal methods in computer science has recently arisen in the form of renewed interest in the nature and capacity of program verification as a method for establishing the reliability of software systems. A paper that appeared in Communications of the ACM entitled, 'Program Verification: The Very Idea', by James H. Fetzer triggered an extended debate that has been discussed in several journals and that has endured for several years, engaging the interest of computer scientists (both theoretical and applied) and of other thinkers from a wide range of backgrounds who want to understand computer science as a domain of inquiry. The editors of this collection have brought together many of the most interesting and important studies to contribute to answering questions about the nature and the limits of computer science. These include early papers advocating the mathematical paradigm by McCarthy, Naur, R. Floyd, and Hoare (in Part I), others that elaborate the paradigm by Hoare, Meyer, Naur, and Scherlis and Scott (in Part II), challenges, limits and alternatives explored by C. Floyd, Smith, Blum, and Naur (in Part III), and recent work focusing on formal verification by DeMillo, Lipton, and Perlis, Fetzer, Cohn, and Colburn (in Part IV). It provides essential resources for further study. This volume will appeal to scientists, philosophers, and laypersons who want to understand the theoretical foundations of computer science and be appropriately positioned to evaluate the scope and limits of the discipline.

[Introduction to Computer Science](#) Apr 20 2022 This book discusses problem-solving theory and its relation to computer science.

[Current Trends in Theoretical Computer Science](#) May 29 2020 contents: vol 1 : Algorithms; Computational Complexity; Distributed Computing; Natural Computing, Programming and Problem Solving with ADA 95 Nov 22 2019 Programming and Problem Solving with Ada 95 provides a solid introduction to programming while introducing the capabilities of Ada 95 and its syntax without overwhelming the student. The book focuses on the development of good programming habits. This text offers superior pedagogy that has long defined computer science education, including problem solving case studies, testing and debugging sections, quick checks, exam preparation, programming warm-up exercises, and programming problems. The extensive coverage of material in such a student-friendly resource means that more rigor, more theory, greater use of abstraction and modeling, and the earlier application of software engineering principles can be employed. [Fundamentals of Computing](#) Sep 01 2020 This second edition is based on the ACM curricula 1991 and is the first in a four-book series of introductory texts in computer science. It focuses on topics such as logic, problem-solving and theory and programs, providing an integrated overview of the major areas of computing while introducing students to the key processes of theory, abstraction and design. Topics covered include: algorithms and data structures, architecture, artificial intelligence and operating systems. The text integrates laboratory experience uniting principles with programming, and introduces the social and professional context of the discipline.

[Schaum's Outline of Theory and Problems of Introduction to Computer Science](#) Sep 08 2021

[Problem Solving in Automata, Languages, and Complexity](#) Aug 20 2019 Automata and natural language theory are topics lying at the heart of computer science. Both are linked to computational complexity and together, these disciplines help define the parameters of what constitutes a computer, the structure of programs which problems are solvable by computers, and a range of other crucial aspects of the practice of computer science. In this important volume, two respected authors/editors in the field offer accessible, practice-oriented coverage of these issues with an emphasis on refining core problem solving skills.

[Classic Computer Science Problems in Python](#) Oct 26 2022 "For intermediate Python programmers"--Back cover.

[Intermediate Problem Solving and Data Structures](#) Oct 19 2022

[The Correctness Problem in Computer Science](#) Jun 22 2022

[Data Analysis and Optimization for Engineering and Computing Problems](#) Sep 16 2021 This book presents the proceedings of The EAI International Conference on Computer Science: Applications in Engineering and Health Services (COMPSE 2019). The conference highlighted the latest research innovations and applications of algorithms designed for optimization applications within the fields of Science, Computer Science, Engineering, Information Technology, Management, Finance and Economics and Health Systems. Focusing on a variety of methods and systems as well as practical examples, this conference is a significant resource for post graduate-level students, decision makers, and researchers in both public and private sectors who are seeking research-based methods for modelling uncertain and unpredictable real-world problems.

[Classic Computer Science Problems in Java](#) Aug 24 2022 Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. Summary Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. You'll work through a series of exercises based in computer science fundamentals that are designed to improve your software development abilities, improve your understanding of artificial intelligence, and even prepare you to ace an interview. As you work through examples in search, clustering, graphs, and more, you'll remember important things you've forgotten and discover classic solutions to your "new" problems! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Whatever software development problem you're facing, odds are someone has already uncovered a solution. This book collects the most useful solutions devised, guiding you through a variety of challenges and tried-and-true problem-solving techniques. The principles and algorithms presented here are guaranteed to save you countless hours in project after project. About the book Classic Computer Science Problems in Java is a master class in computer programming designed around 55 exercises that have been used in computer science classrooms for years. You'll work through hands-on examples as you explore core algorithms, constraint problems, AI applications, and much more. What's inside Recursion, memoization, and bit manipulation Search, graph, and genetic algorithms Constraint-satisfaction problems K-means clustering, neural networks, and adversarial search About the reader For intermediate Java programmers. About the author David Kopec is an assistant professor of Computer Science and Innovation at Champlain College in Burlington, Vermont. Table of Contents 1 Small problems 2 Search problems 3 Constraint-satisfaction problems 4 Graph problems 5 Genetic algorithms 6 K-means clustering 7 Fairly simple neural networks 8 Adversarial search 9 Miscellaneous problems 10 Interview with Brian Goetz

[Fundamentals of Discrete Math for Computer Science](#) Sep 25 2022 This clearly written textbook presents an accessible introduction to discrete mathematics for computer science students, offering the reader an enjoyable and stimulating path to improve their programming competence. The text empowers students to think critically, to be effective problem solvers, to integrate theory and practice, and to recognize the importance of abstraction. Its motivational and interactive style provokes a conversation with the reader through a questioning commentary, and supplies detailed walkthroughs of several algorithms. This updated and enhanced new edition also includes new material on directed graphs, and on drawing and coloring graphs, in addition to more than 100 new exercises (with solutions to selected exercises). Topics and features: assumes no prior mathematical knowledge, and discusses concepts in programming as and when they are needed; designed for both classroom use and self-study, presenting modular and self-contained chapters that follow ACM curriculum recommendations; describes mathematical processes in an algorithmic manner, often supported by a walkthrough demonstrating how the algorithm performs the desired task; includes an extensive set of exercises throughout the text, together with numerous examples, and shaded boxes highlighting key concepts; selects examples that demonstrate a practical use for the concept in question. Students embarking on the start of their studies of computer science will find this book to be an easy-to-understand fun-to-read primer, ideal for use in a mathematics course taken concurrently with their first programming course.

[Challenges at the Interface of Data Analysis, Computer Science, and Optimization](#) Oct 2020 This volume provides approaches and solutions to challenges occurring at the interface of research fields such as data analysis, computer science, operations research, and statistics. It includes theoretically oriented contributions as well as papers from various application areas, where knowledge from different research directions is needed to find the best possible interpretation of data for the underlying problem situations. Beside traditional classification research, the book focuses on current interests in fields such as the analysis of social relationships as well as statistical musicology.

[Java](#) Jun 17 2019 Savitch and Carrano examine problem-solving and programming techniques with Java. Students are introduced to object-oriented programming and important concepts such as design, testing and debugging, programming style, interfaces inheritance, and exception handling.

[Classic Computer Science Problems in Java](#) Nov 15 2021 Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. Summary Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. You'll work through a series of

exercises based in computer science fundamentals that are designed to improve your software development abilities, improve your understanding of artificial intelligence, and even prepare you to ace an interview. As you work through examples in search, clustering, graphs, and more, you'll remember important things you've forgotten and discover classic solutions to your "new" problems! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Whatever software development problem you're facing, odds are someone has already uncovered a solution. This book collects the most useful solutions devised, guiding you through a variety of challenges and tried-and-true problem-solving techniques. The principles and algorithms presented here are guaranteed to save you countless hours in project after project. About the book Classic Computer Science Problems in Java is a master class in computer programming designed around 55 exercises that have been used in computer science classrooms for years. You'll work through hands-on examples as you explore core algorithms, constraint problems, AI applications, and much more. What's inside Recursion, memoization, and bit manipulation Search, graph, and genetic algorithms Constraint-satisfaction problems K-means clustering, neural networks, and adversarial search About the reader For intermediate Java programmers. About the author David Kopec is an assistant professor of Computer Science and Innovation at Champlain College in Burlington, Vermont. Table of Contents 1 Small problems 2 Search problems 3 Constraint-satisfaction problems 4 Graph problems 5 Genetic algorithms 6 K-means clustering 7 Fairly simple neural networks 8 Adversarial search 9 Miscellaneous problems 10 Interview with Brian Goetz

OCR A Level Computer Science Dec 24 2019 Exam Board: OCR Level: A-level Subject: Computer Science First Teaching: September 2015 First Exam: June 2016 Develop confident students with our expert authors: their insight and guidance will ensure a thorough understanding of OCR A Level computer science, with challenging tasks and activities to test essential analytical and problem-solving skills. - Endorsed by OCR for use with the OCR AS and A Level Computer Science specification and written by a trusted and experienced author team, OCR Computer Science for A Level: - Builds students' understanding of the core topics and computing skills required by the course units - Computing Systems, Algorithms and Problem Solving, and Programming Project - with detailed topic coverage, case studies and regular questions to measure understanding - Develops a problem-solving approach based on computational thinking required at both AS and A Level - thought-provoking practice questions at the end of each chapter gives opportunities to probe more deeply into key topics - Incorporates full coverage of skills and knowledge demanded by the examined units, with exercises to help students understand the assessment objectives and advice and examples to support them through the practical element of the course.

Discovering Computer Science Jul 19 2019 "Discovering Computer Science: Interdisciplinary Problems, Principles, and Python Programming is a problem-oriented introduction to computational problem solving and programming in Python, appropriate for a first course for computer science majors, a more targeted disciplinary computing course or, at a slower pace, any introductory computer science course for a general audience. Realizing that an organization around language features only resonates with a narrow audience, this textbook instead connects programming to students' prior interests using a range of authentic problems from the natural and social sciences and the digital humanities. The presentation begins with an introduction to the problem-solving process, contextualizing programming as an essential component. Then, as the book progresses, each chapter guides students through solutions to increasingly complex problems, using a spiral approach to introduce Python language features"--

Computational Thinking: A Perspective on Computer Science Feb 06 2021 This textbook is intended as a textbook for one-semester, introductory computer science courses aimed at undergraduate students from all disciplines. Self-contained and with no prerequisites, it focuses on elementary knowledge and thinking models. The content has been tested in university classrooms for over six years, and has been used in summer schools to train university and high-school teachers on teaching introductory computer science courses using computational thinking. This book introduces computer science from a computational thinking perspective. In computer science the way of thinking is characterized by three external and eight internal features, including automatic execution, bit-accuracy, abstraction. The book is divided into chapters on logic thinking, algorithmic thinking, systems thinking, and network thinking. It also covers societal impact and responsible computing material - from ICT industry to digital economy, from the wonder of exponentiation to wonder of cyberspace, and from code of conduct best practices for independent work. The book's structure encourages active, hands-on learning using the pedagogic tool Bloom's taxonomy to create computational solutions to over 200 problems of varying difficulty. Students solve problems using a combination of thought experiment, programming, and writing methods. Only 300 lines of code in total are required to solve most programming problems in this book.

People, Problems, and Proof Mar 07 2021 People, problems, and proofs are the lifeblood of theoretical computer science. Behind the computing devices and applications that have transformed our lives are clever algorithms, and for every worthwhile algorithm there is a problem that it solves and a proof that it works. Before this proof there was an open problem: can one create an efficient algorithm to solve the computational problem? And, finally, behind these questions are the people who are excited about these fundamental issues in our computational world. In this book the authors draw on their outstanding research and teaching experience to showcase some key people and ideas in the domain of theoretical computer science, particularly in computational complexity and algorithms, and related mathematical topics. They show evidence of the considerable scholarship that supports this young field, and they balance an impressive breadth of topics with the depth necessary to reveal the power and the relevance of the work described. Beyond this, the authors discuss the sustained effort of their community revealing much about the culture of their field. A career in theoretical computer science at the top level is a vocation: the work is hard, and in addition to the obvious requirements such as intellect and training, the vignettes in this book demonstrate the importance of human factors such as personality, instinct, creativity, ambition, tenacity, and luck. The authors' style is characterized by personal observations, enthusiasm, and humor, and this book will be a source of inspiration and guidance for graduate students and researchers engaged with or planning careers in theoretical computer science.

Exploring Computer Science with Scheme Oct 02 2020 A presentation of the central and basic concepts, techniques, and tools of computer science, with the emphasis on presenting a problem-solving approach and on providing a survey of all of the most important topics covered in degree programmes. Scheme is used throughout as the programming language and the author stresses a functional programming approach to create simple functions so as to obtain the desired programming goal. Such simple functions are easily tested individually, which greatly helps in producing programs that work correctly first time. Throughout, the author aids to writing programs, and makes liberal use of boxes with "Mistakes to Avoid." Programming examples include: * abstracting a problem; * creating pseudo code as an intermediate solution; * top-down and bottom-up design; * building procedural and data abstractions; * writing programs in modules which are easily testable. Numerous exercises help readers test their understanding of the material and develop ideas in greater depth, making this an ideal first course for all students coming to computer science for the first time.

Programming Concepts and Problem Solving Feb 18 2022 Contains the Material Needed to Teach ACM Curriculum Course CS1 & CS2 or Other One- or Two-Term Introductory Courses Using PASCAL. Stresses Good Programming Practice & Concepts Rather Than Syntactical Details

Computer Science Distilled Jul 23 2022 A foolproof walkthrough of must-know computer science concepts. A fast guide for those who don't need the academic formality, it goes straight to what differentiates pros from amateurs. First introducing discrete mathematics, then exposing the most common algorithm and data structure design elements, and finally the working principles of computers and programming languages, the book is indicated to all programmers.

Algorithmics for Hard Problems Dec 04 2020 Algorithmic design, especially for hard problems, is more essential for success in solving them than any standard improvement of current computer technologies. Because of this, the design of algorithms for solving hard problems is the core of current algorithmic research from the theoretical point of view as well as from the practical point of view. There are many general text books on algorithmics, and several specialized books devoted to particular approaches such as local search, randomization, approximation algorithms, or heuristics. But there is no textbook that focuses on the design of algorithms for hard computing tasks, and that systematically explains, combines, and compares the main possibilities for attacking hard algorithmic problems. As this topic is fundamental for computer science, this book tries to close this gap. Another motivation, and probably the main reason for writing this book, is connected to education. The considered area has developed very dynamically in recent years and the research on this topic discovered several profound results, new concepts, and new methods. Some of the achieved contributions are so fundamental that one can speak about paradigms which should be included in the education of every computer science student. Unfortunately, this is very far from reality. This is because these paradigms are not sufficiently known in the computer science community, and so they are insufficiently communicated to students and practitioners.

Introduction to Scientific Programming Feb 24 2020 "Introduction to Computational Science" was developed over a period of two years at the University of Utah Department of Computer Science in conjunction with the U.S. Department of Energy-funded Undergraduate Computation in Engineering Science (UCES) program. Each chapter begins by introducing a problem and then guiding the student through its solution. The computational techniques needed to solve the problem are developed as necessary, making the motivation for learning the computing always apparent. Each chapter will introduce a single problem that will be used to motivate a single computing concept. The notes currently consist of 15 chapters. The first seven chapters deal with Maple and the last eight with C. The textbook will contain 20 to 30 chapters covering a similar mix of concepts at a finer level of detail.

Computer Science Jun 10 2021

Programming and Problem Solving with Java Jan 05 2021 Extensively revised, the new Second Edition of Programming and Problem Solving with Java continues to be the most student-friendly text available. The authors carefully broke the text into smaller, more manageable pieces by reorganizing chapters, allowing students to focus more sharply on the important information at hand. Using Dale and Weems' highly effective "progressive objects" approach, students begin with very simple yet useful class design in parallel with the introduction of Java's basic data types, arithmetic operations, control structures, and file I/O. Students see firsthand how the library of objects steadily grows larger, enabling ever more sophisticated applications to be developed through reuse. Later chapters focus on inheritance and polymorphism, using the firm foundation that has been established by steadily developing numerous classes in the early part of the text. A new chapter on Data Structures and Collections has been added making the text ideal for a one or two-semester course. With its numerous new case studies, end-of-chapter material, and clear descriptive examples, the Second Edition is an exceptional text for discovering Java as a first programming language!

Problem Solving with Computers May 09 2021 An introduction to computer science focusing on the methods of problem solving, rather than on the hardware or software tools employed as aids for problem solving. Coverage includes algorithms, hypermedia, and telecomputing. Includes definitions and exercises throughout chapters, and uses feminine perspective.

Algorithmen für den Alltag Apr 08 2021 Endlich ein Buch, das unser Leben einfacher macht! Jeder von uns trifft unzählige Entscheidungen am Tag. Entscheidungen, die uns viel Zeit kosten – und nicht immer zu den besten Ergebnissen führen. Das ließe sich ändern, wenn wir die Vorteile der Algorithmen stärker für uns nutzen würden. Davon sind der Wissenschaftsautor Brian Christian und der Psychologe Tom Griffiths überzeugt. In ihrem Buch zeigen sie auf, wie uns Algorithmen helfen können, die bestmögliche Lösung für ganz alltägliche Probleme zu finden, von der Suche nach einem Parkplatz bis zur Auswahl des richtigen Restaurants oder Partners. "Algorithmen für den Alltag" überträgt die Erkenntnisse der Informatik in nützliche und alltagstaugliche Strategien und zeigt uns, wie wir mit ihrer Hilfe produktiver, organisierter und wesentlich glücklicher werden.

Discovering Computer Science Nov 03 2020 Discovering Computer Science: Interdisciplinary Problems, Principles, and Python Programming introduces computational problem solving as a vehicle of discovery in a wide variety of disciplines. With a principles-oriented introduction to computational thinking, the text provides a broader and deeper introduction to computer science than typical introductory programming books. Organized around interdisciplinary problem domains, rather than programming language features, each chapter guides students through increasingly sophisticated algorithmic and programming techniques. The author uses a spiral approach to introduce Python language features in increasingly complex contexts as the book progresses. The text places programming in the context of fundamental computer science principles, such as abstraction, efficiency, and algorithmic techniques, and offers overviews of fundamental topics that are traditionally put off until later courses. The book includes thirty well-developed independent projects that encourage students to explore questions across disciplinary boundaries. Each is motivated by a problem that students can investigate by developing algorithms and implementing them as Python programs. The book's accompanying website — <http://discoverCS.denison.edu> — includes sample code and data files, pointers for further exploration, errata, and links to Python language references. Containing over 600 homework exercises and over 300 integrated reflection questions, this textbook is appropriate for a first computer science course for computer science majors, an introductory scientific computing course or, at a slower pace, any introductory computer science course.

Computational Physics Jun 29 2020 Help students master real-world problems as they develop new insight into the physical sciences. Problems in the physical sciences that once baffled and frustrated scientists can now be solved easily with the aid of a computer. Computers can quickly complete complex calculations, provide numerical simulations of natural systems, and explore the unknown. Computational Physics shows students how to use computers to solve scientific problems and understand systems at a level previously possible only in a research environment. Adaptable to a ten-week class or a full-year course, it provides C and Fortran programs that can be modified and rewritten as needed to implement a wide range of computational projects. Light on theory, heavy on application, this practical, easy-to-understand guide * Presents material from a problem-oriented perspective * Integrates physics, computer science, and numerical methods and statistics * Encourages creative thinking and an object-oriented view of problem solving * Provides C and Fortran programs for implementing most of the projects * Provides samples of problems actually solved in two ten-week quarters * Includes a 3.5" floppy disk containing the codes featured in the text * Offers multimedia demonstrations and updates on a complementary Web site With this engaging book as a guide, advanced undergraduates and first-year graduate students will gain confidence in their abilities and develop new insight into the physical sciences as they use their computers to address challenging and stimulating problems.

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