

The Algorithm Design Manual Exercise Solutions

YEAH, REVIEWING A EBOOK **THE ALGORITHM DESIGN MANUAL EXERCISE SOLUTIONS** COULD MOUNT UP YOUR NEAR CONTACTS LISTINGS. THIS IS JUST ONE OF THE SOLUTIONS FOR YOU TO BE SUCCESSFUL. AS UNDERSTOOD, CARRYING OUT DOES NOT RECOMMEND THAT YOU HAVE ASTOUNDING POINTS.

COMPREHENDING AS COMPETENTLY AS UNION EVEN MORE THAN OTHER WILL HAVE THE FUNDS FOR EACH SUCCESS. NEIGHBORING TO, THE BROADCAST AS WITH EASE AS SHARPNESS OF THIS THE ALGORITHM DESIGN MANUAL EXERCISE SOLUTIONS CAN BE TAKEN AS COMPETENTLY AS PICKED TO ACT.

ALGORITHMS IN JAVA, PARTS 1-4 - ROBERT SEDGEWICK 2002-07-23

THIS EDITION OF ROBERT SEDGEWICK'S POPULAR WORK PROVIDES CURRENT AND COMPREHENSIVE COVERAGE OF IMPORTANT ALGORITHMS FOR JAVA PROGRAMMERS. MICHAEL SCHIDLOWSKY AND SEDGEWICK HAVE DEVELOPED NEW JAVA IMPLEMENTATIONS THAT BOTH EXPRESS THE METHODS IN A CONCISE AND DIRECT MANNER AND PROVIDE PROGRAMMERS WITH THE PRACTICAL MEANS TO TEST THEM ON REAL APPLICATIONS. MANY NEW ALGORITHMS ARE PRESENTED, AND THE EXPLANATIONS OF EACH ALGORITHM ARE MUCH MORE DETAILED THAN IN PREVIOUS EDITIONS. A NEW TEXT DESIGN AND DETAILED, INNOVATIVE FIGURES, WITH ACCOMPANYING COMMENTARY, GREATLY ENHANCE THE PRESENTATION. THE THIRD EDITION RETAINS THE SUCCESSFUL BLEND OF THEORY AND PRACTICE THAT HAS MADE SEDGEWICK'S WORK AN INVALUABLE RESOURCE FOR MORE THAN 400,000 PROGRAMMERS! THIS PARTICULAR BOOK, PARTS 1-4, REPRESENTS THE ESSENTIAL FIRST HALF OF SEDGEWICK'S COMPLETE WORK. IT PROVIDES EXTENSIVE COVERAGE OF FUNDAMENTAL DATA STRUCTURES AND ALGORITHMS FOR SORTING, SEARCHING, AND RELATED APPLICATIONS. ALTHOUGH THE SUBSTANCE OF THE BOOK APPLIES TO PROGRAMMING IN ANY LANGUAGE, THE IMPLEMENTATIONS BY SCHIDLOWSKY AND SEDGEWICK ALSO EXPLOIT THE NATURAL MATCH BETWEEN JAVA CLASSES AND ABSTRACT DATA TYPE (ADT) IMPLEMENTATIONS. HIGHLIGHTS JAVA CLASS IMPLEMENTATIONS OF MORE THAN 100 IMPORTANT PRACTICAL ALGORITHMS EMPHASIS ON ADTs, MODULAR PROGRAMMING, AND OBJECT-ORIENTED PROGRAMMING EXTENSIVE COVERAGE OF ARRAYS, LINKED LISTS, TREES, AND OTHER FUNDAMENTAL DATA STRUCTURES THOROUGH TREATMENT OF ALGORITHMS FOR SORTING, SELECTION, PRIORITY QUEUE ADT IMPLEMENTATIONS, AND SYMBOL TABLE ADT IMPLEMENTATIONS (SEARCH ALGORITHMS) COMPLETE IMPLEMENTATIONS FOR BINOMIAL QUEUES, MULTIWAY RADIX SORTING, RANDOMIZED BSTs, SPLAY TREES, SKIP LISTS, MULTIWAY TRIES, B TREES, EXTENDIBLE HASHING, AND MANY OTHER ADVANCED METHODS QUANTITATIVE INFORMATION ABOUT THE ALGORITHMS THAT GIVES YOU A BASIS FOR COMPARING THEM MORE THAN 1,000 EXERCISES AND MORE THAN 250 DETAILED FIGURES TO HELP YOU LEARN PROPERTIES OF THE ALGORITHMS WHETHER YOU ARE LEARNING THE ALGORITHMS FOR THE FIRST TIME OR WISH TO HAVE UP-TO-DATE REFERENCE MATERIAL THAT INCORPORATES NEW PROGRAMMING STYLES WITH CLASSIC AND NEW ALGORITHMS, YOU WILL FIND A WEALTH OF USEFUL INFORMATION IN THIS BOOK.

INTRODUCTION TO ALGORITHMS - UDI MANBER 1989

THIS BOOK EMPHASIZES THE CREATIVE ASPECTS OF ALGORITHM DESIGN BY EXAMINING STEPS USED IN THE PROCESS OF ALGORITHM DEVELOPMENT. THE HEART OF THE CREATIVE PROCESS LIES IN AN ANALOGY BETWEEN PROVING MATHEMATICAL THEOREMS BY INDUCTION AND DESIGNING COMBINATORIAL ALGORITHMS. THE BOOK CONTAINS HUNDREDS OF PROBLEMS AND EXAMPLES. IT IS DESIGNED TO ENHANCE THE READER'S PROBLEM-SOLVING ABILITIES AND UNDERSTANDING OF THE PRINCIPLES BEHIND ALGORITHM DESIGN.

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FOUNDATIONS OF ALGORITHMS - RICHARD E. NEAPOLITAN 2011

DATA STRUCTURES & THEORY OF COMPUTATION

ALGORITHMS - JEFF ERICKSON 2019-06-13

ALGORITHMS ARE THE LIFEBLOOD OF COMPUTER SCIENCE. THEY ARE THE MACHINES THAT PROOFS BUILD AND THE MUSIC THAT PROGRAMS PLAY. THEIR HISTORY IS AS OLD AS MATHEMATICS ITSELF. THIS TEXTBOOK IS A WIDE-RANGING, IDIOSYNCRATIC TREATISE ON THE DESIGN AND ANALYSIS OF ALGORITHMS, COVERING SEVERAL FUNDAMENTAL TECHNIQUES, WITH AN EMPHASIS ON INTUITION AND THE PROBLEM-SOLVING PROCESS. THE BOOK INCLUDES IMPORTANT CLASSICAL EXAMPLES, HUNDREDS OF BATTLE-TESTED EXERCISES, FAR TOO MANY HISTORICAL DIGRESSIONS, AND EXACTLY FOUR TYPOS. JEFF ERICKSON IS A COMPUTER SCIENCE PROFESSOR AT THE UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN; THIS BOOK IS BASED ON ALGORITHMS CLASSES HE HAS TAUGHT THERE SINCE 1998.

INTRODUCTION TO THE DESIGN AND ANALYSIS OF ALGORITHMS - ANANY LEVITIN

2014-10-07

BASED ON A NEW CLASSIFICATION OF ALGORITHM DESIGN TECHNIQUES AND A CLEAR DELINEATION OF ANALYSIS METHODS, **INTRODUCTION TO THE DESIGN AND ANALYSIS OF ALGORITHMS** PRESENTS THE SUBJECT IN A COHERENT AND INNOVATIVE MANNER. WRITTEN IN A STUDENT-FRIENDLY STYLE, THE BOOK EMPHASIZES THE UNDERSTANDING OF IDEAS OVER EXCESSIVELY FORMAL TREATMENT WHILE THOROUGHLY COVERING THE MATERIAL REQUIRED IN AN INTRODUCTORY ALGORITHMS COURSE. POPULAR PUZZLES ARE USED TO MOTIVATE STUDENTS' INTEREST AND STRENGTHEN THEIR SKILLS IN ALGORITHMIC PROBLEM SOLVING. OTHER LEARNING-ENHANCEMENT FEATURES INCLUDE CHAPTER SUMMARIES, HINTS TO THE EXERCISES, AND A DETAILED SOLUTION MANUAL. THE FULL TEXT DOWNLOADED TO YOUR COMPUTER WITH EBOOKS YOU CAN: SEARCH FOR KEY CONCEPTS, WORDS AND PHRASES MAKE HIGHLIGHTS AND NOTES AS YOU STUDY SHARE YOUR NOTES WITH FRIENDS EBOOKS ARE DOWNLOADED TO YOUR COMPUTER AND ACCESSIBLE EITHER OFFLINE THROUGH THE BOOKSHELF (AVAILABLE AS A FREE DOWNLOAD), AVAILABLE ONLINE AND ALSO VIA THE IPAD AND ANDROID APPS. UPON PURCHASE, YOU'LL GAIN INSTANT ACCESS TO THIS EBOOK. TIME LIMIT THE EBOOKS PRODUCTS DO NOT HAVE AN EXPIRY DATE. YOU WILL CONTINUE TO ACCESS YOUR DIGITAL EBOOK PRODUCTS WHILST YOU HAVE YOUR BOOKSHELF INSTALLED.

DATA MINING: CONCEPTS AND TECHNIQUES - JIAWEI HAN 2011-06-09

DATA MINING: CONCEPTS AND TECHNIQUES PROVIDES THE CONCEPTS AND TECHNIQUES IN PROCESSING GATHERED DATA OR INFORMATION, WHICH WILL BE USED IN VARIOUS APPLICATIONS. SPECIFICALLY, IT EXPLAINS DATA MINING AND THE TOOLS USED IN DISCOVERING KNOWLEDGE FROM THE COLLECTED DATA. THIS BOOK IS REFERRED AS THE KNOWLEDGE DISCOVERY FROM DATA (KDD). IT FOCUSES ON THE FEASIBILITY, USEFULNESS, EFFECTIVENESS, AND SCALABILITY OF TECHNIQUES OF LARGE DATA SETS. AFTER DESCRIBING

DATA MINING, THIS EDITION EXPLAINS THE METHODS OF KNOWING, PREPROCESSING, PROCESSING, AND WAREHOUSING DATA. IT THEN PRESENTS INFORMATION ABOUT DATA WAREHOUSES, ONLINE ANALYTICAL PROCESSING (OLAP), AND DATA CUBE TECHNOLOGY. THEN, THE METHODS INVOLVED IN MINING FREQUENT PATTERNS, ASSOCIATIONS, AND CORRELATIONS FOR LARGE DATA SETS ARE DESCRIBED. THE BOOK DETAILS THE METHODS FOR DATA CLASSIFICATION AND INTRODUCES THE CONCEPTS AND METHODS FOR DATA CLUSTERING. THE REMAINING CHAPTERS DISCUSS THE OUTLIER DETECTION AND THE TRENDS, APPLICATIONS, AND RESEARCH FRONTIERS IN DATA MINING. THIS BOOK IS INTENDED FOR COMPUTER SCIENCE STUDENTS, APPLICATION DEVELOPERS, BUSINESS PROFESSIONALS, AND RESEARCHERS WHO SEEK INFORMATION ON DATA MINING. PRESENTS DOZENS OF ALGORITHMS AND IMPLEMENTATION EXAMPLES, ALL IN PSEUDO-CODE AND SUITABLE FOR USE IN REAL-WORLD, LARGE-SCALE DATA MINING PROJECTS ADDRESSES ADVANCED TOPICS SUCH AS MINING OBJECT-RELATIONAL DATABASES, SPATIAL DATABASES, MULTIMEDIA DATABASES, TIME-SERIES DATABASES, TEXT DATABASES, THE WORLD WIDE WEB, AND APPLICATIONS IN SEVERAL FIELDS PROVIDES A COMPREHENSIVE, PRACTICAL LOOK AT THE CONCEPTS AND TECHNIQUES YOU NEED TO GET THE MOST OUT OF YOUR DATA

CALCULATED BETS - STEVEN S. SKIENA 2001-08-06

THIS IS A BOOK ABOUT A GAMBLING SYSTEM THAT WORKS. IT TELLS THE STORY OF HOW THE AUTHOR USED COMPUTER SIMULATIONS AND MATHEMATICAL MODELING TECHNIQUES TO PREDICT THE OUTCOME OF JAI-ALAI MATCHES AND BET ON THEM SUCCESSFULLY - INCREASING HIS INITIAL STAKE BY OVER 500% IN ONE YEAR! HIS RESULTS CAN WORK FOR ANYONE: AT THE END OF THE BOOK HE TELLS THE BEST WAY TO WATCH JAI-ALAI, AND HOW TO BET ON IT. WITH HUMOUR AND ENTHUSIASM, SKIENA DETAILS A LIFE-LONG FASCINATION WITH COMPUTER PREDICTIONS AND SPORTING EVENTS. ALONG THE WAY, HE DISCUSSES OTHER GAMBLING SYSTEMS, BOTH SUCCESSFUL AND UNSUCCESSFUL, FOR SUCH GAMES AS LOTTO, ROULETTE, BLACKJACK, AND THE STOCK MARKET. INDEED, HE SHOWS HOW HIS JAI-ALAI SYSTEM FUNCTIONS JUST LIKE A MINIATURE STOCK TRADING SYSTEM. DO YOU WANT TO LEARN ABOUT PROGRAM TRADING SYSTEMS, THE FUTURE OF INTERNET GAMBLING, AND THE REAL REASON BROKERAGE HOUSES DON'T OFFER MUTUAL FUNDS THAT INVEST AT RACETRACKS AND FRONTONS? HOW MATHEMATICAL MODELS ARE USED IN POLITICAL POLLING? THE DIFFERENCE BETWEEN CORRELATION AND CAUSATION? IF YOU ARE CURIOUS ABOUT GAMBLING AND MATHEMATICS, ODDS ARE THIS BOOK IS FOR YOU!

DATA STRUCTURES AND ALGORITHM ANALYSIS IN C - MARK ALLEN WEISS 1997

IN THIS SECOND EDITION OF HIS BEST-SELLING BOOK, **DATA STRUCTURES AND ALGORITHM ANALYSIS IN C**, MARK ALLEN WEISS, CONTINUES TO REFINE AND ENHANCE HIS INNOVATIVE APPROACH TO ALGORITHMS AND DATA STRUCTURES. USING A C IMPLEMENTATION, HE HIGHLIGHTS CONCEPTUAL TOPICS, FOCUSING ON ADTs AND THE ANALYSIS OF ALGORITHMS FOR EFFICIENCY AS WELL AS PERFORMANCE AND RUNNING TIME. DR WEISS ALSO DISTINGUISHES **DATA STRUCTURES AND ALGORITHM ANALYSIS IN C** WITH THE EXTENSIVE USE OF FIGURES AND EXAMPLES SHOWING THE SUCCESSIVE STAGES OF AN ALGORITHM, HIS ENGAGING WRITING STYLE, AND A LOGICAL ORGANIZATION OF TOPICS. GREEDY ALGORITHMS, DIVIDE AND CONQUER ALGORITHMS, DYNAMIC PROGRAMMING, RANDOMIZED ALGORITHMS, AND BACKTRACKING * PRESENTS CURRENT TOPICS AND NEWER DATA STRUCTURES SUCH AS FIBONACCI HEAPS, SKEW HEAPS, BINOMIAL QUEUES, SKIP LISTS, AND SPLAY TREES * CONTAINS A CHAPTER ON AMORTIZED ANALYSIS THAT EXAMINES THE ADVANCED DATA STRUCTURES PRESENTED EARLIER IN THE BOOK * PROVIDES A NEW CHAPTER ON ADVANCED DATA STRUCTURES AND THEIR IMPLEMENTATION COVERING RED BLACK TREES, TOP DOWN SPLAY TREES, TREAPS, K-D TREES, PAIRING HEAPS, AND MORE * INCORPORATES NEW RESULTS ON THE AVERAGE CASE ANALYSIS OF HEAPSORT * OFFERS SOURCE CODE FROM EXAMPLE PROGRAMS VIA ANONYMOUS FTP 0201498405B04062001

BANDIT ALGORITHMS - TOR LATTIMORE 2020-07-16

A COMPREHENSIVE AND RIGOROUS INTRODUCTION FOR GRADUATE STUDENTS AND RESEARCHERS, WITH APPLICATIONS IN SEQUENTIAL DECISION-MAKING PROBLEMS.

7 ALGORITHM DESIGN PARADIGMS - SUNG-HYUK CHA 2020-06-03

THE INTENDED READERSHIP INCLUDES BOTH UNDERGRADUATE AND GRADUATE STUDENTS MAJORING IN COMPUTER SCIENCE AS WELL AS RESEARCHERS IN THE COMPUTER SCIENCE AREA. THE BOOK IS SUITABLE EITHER AS A TEXTBOOK OR AS A SUPPLEMENTARY BOOK IN ALGORITHM COURSES. OVER 400 COMPUTATIONAL PROBLEMS ARE COVERED WITH VARIOUS ALGORITHMS TO TACKLE THEM. RATHER THAN PROVIDING STUDENTS SIMPLY WITH THE BEST KNOWN ALGORITHM FOR A PROBLEM, THIS BOOK PRESENTS VARIOUS ALGORITHMS FOR READERS TO MASTER VARIOUS ALGORITHM DESIGN PARADIGMS. BEGINNERS IN COMPUTER SCIENCE CAN TRAIN THEIR ALGORITHM DESIGN SKILLS VIA TRIVIAL ALGORITHMS ON ELEMENTARY PROBLEM EXAMPLES. GRADUATE STUDENTS CAN TEST THEIR ABILITIES TO APPLY THE ALGORITHM DESIGN PARADIGMS TO DEVISE AN EFFICIENT ALGORITHM FOR INTERMEDIATE-LEVEL OR CHALLENGING PROBLEMS. KEY FEATURES INCLUDES FOLLOWINGS: 1 DICTIONARY OF COMPUTATIONAL PROBLEMS: A TABLE OF OVER 400 COMPUTATIONAL PROBLEMS WITH MORE THAN 1500 ALGORITHMS IS PROVIDED. 2 INDICES AND HYPERLINKS: ALGORITHMS, COMPUTATIONAL PROBLEMS, EQUATIONS, FIGURES, LEMMAS, PROPERTIES, TABLES, AND THEOREMS ARE INDEXED WITH UNIQUE IDENTIFICATION NUMBERS AND PAGE NUMBERS IN THE PRINTED BOOK AND HYPERLINKED IN THE E-BOOK VERSION. 3 EXTENSIVE FIGURES: OVER 435 FIGURES ILLUSTRATE THE ALGORITHMS AND DESCRIBE COMPUTATIONAL PROBLEMS. 4 COMPREHENSIVE EXERCISES: MORE THAN 352 EXERCISES HELP STUDENTS TO IMPROVE THEIR ALGORITHM DESIGN AND ANALYSIS SKILLS. THE ANSWERS FOR MOST QUESTIONS ARE AVAILABLE IN THE ACCOMPANYING SOLUTION MANUAL.

PROBABILITY AND COMPUTING - MICHAEL MITZENMACHER 2005-01-31

RANDOMIZATION AND PROBABILISTIC TECHNIQUES PLAY AN IMPORTANT ROLE IN MODERN

COMPUTER SCIENCE, WITH APPLICATIONS RANGING FROM COMBINATORIAL OPTIMIZATION AND MACHINE LEARNING TO COMMUNICATION NETWORKS AND SECURE PROTOCOLS. THIS 2005 TEXTBOOK IS DESIGNED TO ACCOMPANY A ONE- OR TWO-SEMESTER COURSE FOR ADVANCED UNDERGRADUATES OR BEGINNING GRADUATE STUDENTS IN COMPUTER SCIENCE AND APPLIED MATHEMATICS. IT GIVES AN EXCELLENT INTRODUCTION TO THE PROBABILISTIC TECHNIQUES AND PARADIGMS USED IN THE DEVELOPMENT OF PROBABILISTIC ALGORITHMS AND ANALYSES. IT ASSUMES ONLY AN ELEMENTARY BACKGROUND IN DISCRETE MATHEMATICS AND GIVES A RIGOROUS YET ACCESSIBLE TREATMENT OF THE MATERIAL, WITH NUMEROUS EXAMPLES AND APPLICATIONS. THE FIRST HALF OF THE BOOK COVERS CORE MATERIAL, INCLUDING RANDOM SAMPLING, EXPECTATIONS, MARKOV'S INEQUALITY, CHEVYSHEV'S INEQUALITY, CHERNOFF BOUNDS, THE PROBABILISTIC METHOD AND MARKOV CHAINS. THE SECOND HALF COVERS MORE ADVANCED TOPICS SUCH AS CONTINUOUS PROBABILITY, APPLICATIONS OF LIMITED INDEPENDENCE, ENTROPY, MARKOV CHAIN MONTE CARLO METHODS AND BALANCED ALLOCATIONS. WITH ITS COMPREHENSIVE SELECTION OF TOPICS, ALONG WITH MANY EXAMPLES AND EXERCISES, THIS BOOK IS AN INDISPENSABLE TEACHING TOOL.

ALGORITHM DESIGN WITH HASKELL - RICHARD BIRD 2020-07-09

THIS BOOK IS DEVOTED TO FIVE MAIN PRINCIPLES OF ALGORITHM DESIGN: DIVIDE AND CONQUER, GREEDY ALGORITHMS, THINNING, DYNAMIC PROGRAMMING, AND EXHAUSTIVE SEARCH. THESE PRINCIPLES ARE PRESENTED USING HASKELL, A PURELY FUNCTIONAL LANGUAGE, LEADING TO SIMPLER EXPLANATIONS AND SHORTER PROGRAMS THAN WOULD BE OBTAINED WITH IMPERATIVE LANGUAGES. CAREFULLY SELECTED EXAMPLES, BOTH NEW AND STANDARD, REVEAL THE COMMONALITIES AND HIGHLIGHT THE DIFFERENCES BETWEEN ALGORITHMS. THE ALGORITHM DEVELOPMENTS USE EQUATIONAL REASONING WHERE APPLICABLE, CLARIFYING THE APPLICABILITY CONDITIONS AND CORRECTNESS ARGUMENTS. EVERY CHAPTER CONCLUDES WITH EXERCISES (NEARLY 300 IN TOTAL), EACH WITH COMPLETE ANSWERS, ALLOWING THE READER TO CONSOLIDATE THEIR UNDERSTANDING AND APPLY THE TECHNIQUES TO A RANGE OF PROBLEMS. THE BOOK SERVES STUDENTS (BOTH UNDERGRADUATE AND POSTGRADUATE), RESEARCHERS, TEACHERS, AND PROFESSIONALS WHO WANT TO KNOW MORE ABOUT WHAT GOES INTO A GOOD ALGORITHM AND HOW SUCH ALGORITHMS CAN BE EXPRESSED IN PURELY FUNCTIONAL TERMS.

FORECASTING: PRINCIPLES AND PRACTICE - ROB J HYNDMAN 2018-05-08

FORECASTING IS REQUIRED IN MANY SITUATIONS. STOCKING AN INVENTORY MAY REQUIRE FORECASTS OF DEMAND MONTHS IN ADVANCE. TELECOMMUNICATION ROUTING REQUIRES TRAFFIC FORECASTS A FEW MINUTES AHEAD. WHATEVER THE CIRCUMSTANCES OR TIME HORIZONS INVOLVED, FORECASTING IS AN IMPORTANT AID IN EFFECTIVE AND EFFICIENT PLANNING. THIS TEXTBOOK PROVIDES A COMPREHENSIVE INTRODUCTION TO FORECASTING METHODS AND PRESENTS ENOUGH INFORMATION ABOUT EACH METHOD FOR READERS TO USE THEM SENSIBLY.

ALGORITHMS IN A NUTSHELL - GEORGE T. HEINEMAN 2008-10-14

CREATING ROBUST SOFTWARE REQUIRES THE USE OF EFFICIENT ALGORITHMS, BUT PROGRAMMERS SELDOM THINK ABOUT THEM UNTIL A PROBLEM OCCURS. ALGORITHMS IN A NUTSHELL DESCRIBES A LARGE NUMBER OF EXISTING ALGORITHMS FOR SOLVING A VARIETY OF PROBLEMS, AND HELPS YOU SELECT AND IMPLEMENT THE RIGHT ALGORITHM FOR YOUR NEEDS - WITH JUST ENOUGH MATH TO LET YOU UNDERSTAND AND ANALYZE ALGORITHM PERFORMANCE. WITH ITS FOCUS ON APPLICATION, RATHER THAN THEORY, THIS BOOK PROVIDES EFFICIENT CODE SOLUTIONS IN SEVERAL PROGRAMMING LANGUAGES THAT YOU CAN EASILY ADAPT TO A SPECIFIC PROJECT. EACH MAJOR ALGORITHM IS PRESENTED IN THE STYLE OF A DESIGN PATTERN THAT INCLUDES INFORMATION TO HELP YOU UNDERSTAND WHY AND WHEN THE ALGORITHM IS APPROPRIATE. WITH THIS BOOK, YOU WILL: SOLVE A PARTICULAR CODING PROBLEM OR IMPROVE ON THE PERFORMANCE OF AN EXISTING SOLUTION QUICKLY LOCATE ALGORITHMS THAT RELATE TO THE PROBLEMS YOU WANT TO SOLVE, AND DETERMINE WHY A PARTICULAR ALGORITHM IS THE RIGHT ONE TO USE GET ALGORITHMIC SOLUTIONS IN C, C++, JAVA, AND RUBY WITH IMPLEMENTATION TIPS LEARN THE EXPECTED PERFORMANCE OF AN ALGORITHM, AND THE CONDITIONS IT NEEDS TO PERFORM AT ITS BEST DISCOVER THE IMPACT THAT SIMILAR DESIGN DECISIONS HAVE ON DIFFERENT ALGORITHMS LEARN ADVANCED DATA STRUCTURES TO IMPROVE THE EFFICIENCY OF ALGORITHMS WITH ALGORITHMS IN A NUTSHELL, YOU'LL LEARN HOW TO IMPROVE THE PERFORMANCE OF KEY ALGORITHMS ESSENTIAL FOR THE SUCCESS OF YOUR SOFTWARE APPLICATIONS.

THE DATA SCIENCE DESIGN MANUAL - STEVEN S. SKIENA 2017-07-01

THIS ENGAGING AND CLEARLY WRITTEN TEXTBOOK/REFERENCE PROVIDES A MUST-HAVE INTRODUCTION TO THE RAPIDLY EMERGING INTERDISCIPLINARY FIELD OF DATA SCIENCE. IT FOCUSES ON THE PRINCIPLES FUNDAMENTAL TO BECOMING A GOOD DATA SCIENTIST AND THE KEY SKILLS NEEDED TO BUILD SYSTEMS FOR COLLECTING, ANALYZING, AND INTERPRETING DATA. THE DATA SCIENCE DESIGN MANUAL IS A SOURCE OF PRACTICAL INSIGHTS THAT HIGHLIGHTS WHAT REALLY MATTERS IN ANALYZING DATA, AND PROVIDES AN INTUITIVE UNDERSTANDING OF HOW THESE CORE CONCEPTS CAN BE USED. THE BOOK DOES NOT EMPHASIZE ANY PARTICULAR PROGRAMMING LANGUAGE OR SUITE OF DATA-ANALYSIS TOOLS, FOCUSING INSTEAD ON HIGH-LEVEL DISCUSSION OF IMPORTANT DESIGN PRINCIPLES. THIS EASY-TO-READ TEXT IDEALLY SERVES THE NEEDS OF UNDERGRADUATE AND EARLY GRADUATE STUDENTS EMBARKING ON AN "INTRODUCTION TO DATA SCIENCE" COURSE. IT REVEALS HOW THIS DISCIPLINE SITS AT THE INTERSECTION OF STATISTICS, COMPUTER SCIENCE, AND MACHINE LEARNING, WITH A DISTINCT HEFT AND CHARACTER OF ITS OWN. PRACTITIONERS IN THESE AND RELATED FIELDS WILL FIND THIS BOOK PERFECT FOR SELF-STUDY AS WELL. ADDITIONAL LEARNING TOOLS: CONTAINS "WAR STORIES," OFFERING PERSPECTIVES ON HOW DATA SCIENCE APPLIES IN THE REAL WORLD INCLUDES "HOMEWORK PROBLEMS," PROVIDING A WIDE RANGE OF EXERCISES AND PROJECTS FOR SELF-STUDY PROVIDES A COMPLETE SET OF LECTURE SLIDES AND ONLINE VIDEO LECTURES AT WWW.DATA-MANUAL.COM PROVIDES "TAKE-HOME LESSONS," EMPHASIZING THE BIG-PICTURE CONCEPTS TO LEARN FROM EACH CHAPTER RECOMMENDS EXCITING "KAGGLE CHALLENGES" FROM THE ONLINE PLATFORM KAGGLE HIGHLIGHTS "FALSE STARTS," REVEALING THE SUBTLE REASONS WHY CERTAIN APPROACHES FAIL OFFERS EXAMPLES TAKEN FROM THE DATA SCIENCE TELEVISION SHOW "THE QUANT SHOP" (WWW.QUANT-SHOP.COM)

ALGORITHMS IN C: PTS. 1-4. FUNDAMENTALS, DATA STRUCTURES, SORTING, SEARCHING. [2], PT. 5. GRAPH ALGORITHMS - ROBERT SEDGEWICK 1998

ALGORITHMIC PUZZLES - ANANY LEVITIN 2011-10-14

ALGORITHMIC PUZZLES ARE PUZZLES INVOLVING WELL-DEFINED PROCEDURES FOR SOLVING

PROBLEMS. THIS BOOK WILL PROVIDE AN ENJOYABLE AND ACCESSIBLE INTRODUCTION TO ALGORITHMIC PUZZLES THAT WILL DEVELOP THE READER'S ALGORITHMIC THINKING. THE FIRST PART OF THIS BOOK IS A TUTORIAL ON ALGORITHM DESIGN STRATEGIES AND ANALYSIS TECHNIQUES. ALGORITHM DESIGN STRATEGIES — EXHAUSTIVE SEARCH, BACKTRACKING, DIVIDE-AND-CONQUER AND A FEW OTHERS — ARE GENERAL APPROACHES TO DESIGNING STEP-BY-STEP INSTRUCTIONS FOR SOLVING PROBLEMS. ANALYSIS TECHNIQUES ARE METHODS FOR INVESTIGATING SUCH PROCEDURES TO ANSWER QUESTIONS ABOUT THE ULTIMATE RESULT OF THE PROCEDURE OR HOW MANY STEPS ARE EXECUTED BEFORE THE PROCEDURE STOPS. THE DISCUSSION IS AN ELEMENTARY LEVEL, WITH PUZZLE EXAMPLES, AND REQUIRES NEITHER PROGRAMMING NOR MATHEMATICS BEYOND A SECONDARY SCHOOL LEVEL. THUS, THE TUTORIAL PROVIDES A GENTLE AND ENTERTAINING INTRODUCTION TO MAIN IDEAS IN HIGH-LEVEL ALGORITHMIC PROBLEM SOLVING. THE SECOND AND MAIN PART OF THE BOOK CONTAINS 150 PUZZLES, FROM CENTURIES-OLD CLASSICS TO NEWCOMERS OFTEN ASKED DURING JOB INTERVIEWS AT COMPUTING, ENGINEERING, AND FINANCIAL COMPANIES. THE PUZZLES ARE DIVIDED INTO THREE GROUPS BY THEIR DIFFICULTY LEVELS. THE FIRST FIFTY PUZZLES IN THE EASIER PUZZLES SECTION REQUIRE ONLY MIDDLE SCHOOL MATHEMATICS. THE SIXTY PUZZLE OF AVERAGE DIFFICULTY AND FORTY HARDER PUZZLES REQUIRE JUST HIGH SCHOOL MATHEMATICS PLUS A FEW TOPICS SUCH AS BINARY NUMBERS AND SIMPLE RECURRENCES, WHICH ARE REVIEWED IN THE TUTORIAL. ALL THE PUZZLES ARE PROVIDED WITH HINTS, DETAILED SOLUTIONS, AND BRIEF COMMENTS. THE COMMENTS DEAL WITH THE PUZZLE ORIGINS AND DESIGN OR ANALYSIS TECHNIQUES USED IN THE SOLUTION. THE BOOK SHOULD BE OF INTEREST TO PUZZLE LOVERS, STUDENTS AND TEACHERS OF ALGORITHM COURSES, AND PERSONS EXPECTING TO BE GIVEN PUZZLES DURING JOB INTERVIEWS.

INTRODUCTION TO ALGORITHMS - THOMAS H CORMEN 2001

AN EXTENSIVELY REVISED EDITION OF A MATHEMATICALLY RIGOROUS YET ACCESSIBLE INTRODUCTION TO ALGORITHMS.

ALGORITHMS UNPLUGGED - BERTHOLD VÖCKING 2010-12-10

ALGORITHMS SPECIFY THE WAY COMPUTERS PROCESS INFORMATION AND HOW THEY EXECUTE TASKS. MANY RECENT TECHNOLOGICAL INNOVATIONS AND ACHIEVEMENTS RELY ON ALGORITHMIC IDEAS — THEY FACILITATE NEW APPLICATIONS IN SCIENCE, MEDICINE, PRODUCTION, LOGISTICS, TRAFFIC, COMMUNICATION AND ENTERTAINMENT. EFFICIENT ALGORITHMS NOT ONLY ENABLE YOUR PERSONAL COMPUTER TO EXECUTE THE NEWEST GENERATION OF GAMES WITH FEATURES UNIMAGINABLE ONLY A FEW YEARS AGO, THEY ARE ALSO KEY TO SEVERAL RECENT SCIENTIFIC BREAKTHROUGHS — FOR EXAMPLE, THE SEQUENCING OF THE HUMAN GENOME WOULD NOT HAVE BEEN POSSIBLE WITHOUT THE INVENTION OF NEW ALGORITHMIC IDEAS THAT SPEED UP COMPUTATIONS BY SEVERAL ORDERS OF MAGNITUDE. THE GREATEST IMPROVEMENTS IN THE AREA OF ALGORITHMS RELY ON BEAUTIFUL IDEAS FOR TACKLING COMPUTATIONAL TASKS MORE EFFICIENTLY. THE PROBLEMS SOLVED ARE NOT RESTRICTED TO ARITHMETIC TASKS IN A NARROW SENSE BUT OFTEN RELATE TO EXCITING QUESTIONS OF NONMATHEMATICAL FLAVOR, SUCH AS: HOW CAN I FIND THE EXIT OUT OF A MAZE? HOW CAN I PARTITION A TREASURE MAP SO THAT THE TREASURE CAN ONLY BE FOUND IF ALL PARTS OF THE MAP ARE RECOMBINED? HOW SHOULD I PLAN MY TRIP TO MINIMIZE COST? SOLVING THESE CHALLENGING PROBLEMS REQUIRES LOGICAL REASONING, GEOMETRIC AND COMBINATORIAL IMAGINATION, AND, LAST BUT NOT LEAST, CREATIVITY — THE SKILLS NEEDED FOR THE DESIGN AND ANALYSIS OF ALGORITHMS. IN THIS BOOK WE PRESENT SOME OF THE MOST BEAUTIFUL ALGORITHMIC IDEAS IN 41 ARTICLES WRITTEN IN COLLOQUIAL, NONTECHNICAL LANGUAGE. MOST OF THE ARTICLES AROSE OUT OF AN INITIATIVE AMONG GERMAN-LANGUAGE UNIVERSITIES TO COMMUNICATE THE FASCINATION OF ALGORITHMS AND COMPUTER SCIENCE TO HIGH-SCHOOL STUDENTS. THE BOOK CAN BE UNDERSTOOD WITHOUT ANY PRIOR KNOWLEDGE OF ALGORITHMS AND COMPUTING, AND IT WILL BE AN ENLIGHTENING AND FUN READ FOR STUDENTS AND INTERESTED ADULTS.

ALGORITHM DESIGN - JON KLEINBERG 2013-08-29

ALGORITHM DESIGN INTRODUCES ALGORITHMS BY LOOKING AT THE REAL-WORLD PROBLEMS THAT MOTIVATE THEM. THE BOOK TEACHES STUDENTS A RANGE OF DESIGN AND ANALYSIS TECHNIQUES FOR PROBLEMS THAT ARISE IN COMPUTING APPLICATIONS. THE TEXT ENCOURAGES AN UNDERSTANDING OF THE ALGORITHM DESIGN PROCESS AND AN APPRECIATION OF THE ROLE OF ALGORITHMS IN THE BROADER FIELD OF COMPUTER SCIENCE. THE FULL TEXT DOWNLOADED TO YOUR COMPUTER WITH eBooks YOU CAN: SEARCH FOR KEY CONCEPTS, WORDS AND PHRASES MAKE HIGHLIGHTS AND NOTES AS YOU STUDY SHARE YOUR NOTES WITH FRIENDS eBooks ARE DOWNLOADED TO YOUR COMPUTER AND ACCESSIBLE EITHER OFFLINE THROUGH THE BOOKSHELF (AVAILABLE AS A FREE DOWNLOAD), AVAILABLE ONLINE AND ALSO VIA THE iPad AND ANDROID APPS. UPON PURCHASE, YOU'LL GAIN INSTANT ACCESS TO THIS eBook. TIME LIMIT THE eBooks PRODUCTS DO NOT HAVE AN EXPIRY DATE. YOU WILL CONTINUE TO ACCESS YOUR DIGITAL eBook PRODUCTS WHILST YOU HAVE YOUR BOOKSHELF INSTALLED.

PERFORMANCE BY DESIGN - DANIEL MENASCÉ, FREDERICK B. CHAPMAN © 2004

PRACTICAL, REAL-WORLD SOLUTIONS ARE GIVEN TO POTENTIAL PROBLEMS COVERING THE ENTIRE SYSTEM LIFE CYCLE. THIS BOOK DESCRIBES HOW TO MAP REAL-LIFE SYSTEMS (DATABASES, DATA CENTERS, AND E-COMMERCE APPLICATIONS) INTO ANALYTIC PERFORMANCE MODELS. THE AUTHORS ELABORATE UPON THESE MODELS AND USE THEM TO HELP THE READER BETTER UNDERSTAND PERFORMANCE ISSUES.

ALGORITHMS - M H ALSUWAIYEL 1999-08-30

PROBLEM SOLVING IS AN ESSENTIAL PART OF EVERY SCIENTIFIC DISCIPLINE. IT HAS TWO COMPONENTS: (1) PROBLEM IDENTIFICATION AND FORMULATION, AND (2) SOLUTION OF THE FORMULATED PROBLEM. ONE CAN SOLVE A PROBLEM ON ITS OWN USING AD HOC TECHNIQUES OR FOLLOW THOSE TECHNIQUES THAT HAVE PRODUCED EFFICIENT SOLUTIONS TO SIMILAR PROBLEMS. THIS REQUIRES THE UNDERSTANDING OF VARIOUS ALGORITHM DESIGN TECHNIQUES, HOW AND WHEN TO USE THEM TO FORMULATE SOLUTIONS AND THE CONTEXT APPROPRIATE FOR EACH OF THEM. THIS BOOK ADVOCATES THE STUDY OF ALGORITHM DESIGN TECHNIQUES BY PRESENTING MOST OF THE USEFUL ALGORITHM DESIGN TECHNIQUES AND ILLUSTRATING THEM THROUGH NUMEROUS EXAMPLES. CONTENTS: BASIC CONCEPTS AND INTRODUCTION TO ALGORITHMS: BASIC CONCEPTS IN ALGORITHMIC ANALYSIS MATHEMATICAL PRELIMINARIES DATA STRUCTURES HEAPS AND THE DISJOINT SETS DATA STRUCTURES TECHNIQUES BASED ON RECURSION: INDUCTION DIVIDE AND CONQUER DYNAMIC PROGRAMMING FIRST-CUT TECHNIQUES: THE GREEDY APPROACH GRAPH TRAVERSAL COMPLEXITY OF PROBLEMS: NP-COMplete PROBLEMS INTRODUCTION TO COMPUTATIONAL COMPLEXITY LOWER BOUNDS COPING WITH

HARDNESS:BACKTRACKINGRANDOMIZED ALGORITHMSAPPROXIMATION ALGORITHMSITERATIVE IMPROVEMENT FOR DOMAIN-SPECIFIC PROBLEMS:NETWORK FLOWMATCHING TECHNIQUES IN COMPUTATIONAL GEOMETRY:GEOMETRIC SWEEPINGVORONOI DIAGRAMS READERSHIP: SENIOR UNDERGRADUATES, GRADUATE STUDENTS AND PROFESSIONALS IN SOFTWARE DEVELOPMENT.

KEYWORDS:

INTRODUCTION TO DESIGN AND ANALYSIS OF ALGORITHMS, 2/E - ANANY LEVITIN 2008-09

A GUIDE TO ALGORITHM DESIGN - ANNE BENOIT 2013-08-27

PRESENTING A COMPLEMENTARY PERSPECTIVE TO STANDARD BOOKS ON ALGORITHMS, A GUIDE TO ALGORITHM DESIGN: PARADIGMS, METHODS, AND COMPLEXITY ANALYSIS PROVIDES A ROADMAP FOR READERS TO DETERMINE THE DIFFICULTY OF AN ALGORITHMIC PROBLEM BY FINDING AN OPTIMAL SOLUTION OR PROVING COMPLEXITY RESULTS. IT GIVES A PRACTICAL TREATMENT OF ALGORITHMIC COMPLEXITY AND GUIDES READERS IN SOLVING ALGORITHMIC PROBLEMS. DIVIDED INTO THREE PARTS, THE BOOK OFFERS A COMPREHENSIVE SET OF PROBLEMS WITH SOLUTIONS AS WELL AS IN-DEPTH CASE STUDIES THAT DEMONSTRATE HOW TO ASSESS THE COMPLEXITY OF A NEW PROBLEM. PART I HELPS READERS UNDERSTAND THE MAIN DESIGN PRINCIPLES AND DESIGN EFFICIENT ALGORITHMS. PART II COVERS POLYNOMIAL REDUCTIONS FROM NP-COMPLETE PROBLEMS AND APPROACHES THAT GO BEYOND NP-COMPLETENESS. PART III SUPPLIES READERS WITH TOOLS AND TECHNIQUES TO EVALUATE PROBLEM COMPLEXITY, INCLUDING HOW TO DETERMINE WHICH INSTANCES ARE POLYNOMIAL AND WHICH ARE NP-HARD. DRAWING ON THE AUTHORS' CLASSROOM-TESTED MATERIAL, THIS TEXT TAKES READERS STEP BY STEP THROUGH THE CONCEPTS AND METHODS FOR ANALYZING ALGORITHMIC COMPLEXITY. THROUGH MANY PROBLEMS AND DETAILED EXAMPLES, READERS CAN INVESTIGATE POLYNOMIAL-TIME ALGORITHMS AND NP-COMPLETENESS AND BEYOND.

PROBLEMS ON ALGORITHMS - IAN PARBERRY 1995

WITH APPROXIMATELY 600 PROBLEMS AND 35 WORKED EXAMPLES, THIS SUPPLEMENT PROVIDES A COLLECTION OF PRACTICAL PROBLEMS ON THE DESIGN, ANALYSIS AND VERIFICATION OF ALGORITHMS. THE BOOK FOCUSES ON THE IMPORTANT AREAS OF ALGORITHM DESIGN AND ANALYSIS: BACKGROUND MATERIAL; ALGORITHM DESIGN TECHNIQUES; ADVANCED DATA STRUCTURES AND NP-COMPLETENESS; AND MISCELLANEOUS PROBLEMS. ALGORITHMS ARE EXPRESSED IN PASCAL-LIKE PSEUDOCODE SUPPORTED BY FIGURES, DIAGRAMS, HINTS, SOLUTIONS, AND COMMENTS.

PROGRAMMING CHALLENGES - STEVEN S SKIENA 2006-04-18

THERE ARE MANY DISTINCT PLEASURES ASSOCIATED WITH COMPUTER PROGRAMMING. CRAFTSMANSHIP HAS ITS QUIET REWARDS, THE SATISFACTION THAT COMES FROM BUILDING A USEFUL OBJECT AND MAKING IT WORK. EXCITEMENT ARRIVES WITH THE FLASH OF INSIGHT THAT CRACKS A PREVIOUSLY INTRACTABLE PROBLEM. THE SPIRITUAL QUEST FOR ELEGANCE CAN TURN THE HACKER INTO AN ARTIST. THERE ARE PLEASURES IN PARSIMONY, IN SQUEEZING THE LAST DROP OF PERFORMANCE OUT OF CLEVER ALGORITHMS AND TIGHT CODING. THE GAMES, PUZZLES, AND CHALLENGES OF PROBLEMS FROM INTERNATIONAL PROGRAMMING COMPETITIONS ARE A GREAT WAY TO EXPERIENCE THESE PLEASURES WHILE IMPROVING YOUR ALGORITHMIC AND CODING SKILLS. THIS BOOK CONTAINS OVER 100 PROBLEMS THAT HAVE APPEARED IN PREVIOUS PROGRAMMING CONTESTS, ALONG WITH DISCUSSIONS OF THE THEORY AND IDEAS NECESSARY TO ATTACK THEM. INSTANT ONLINE GRADING FOR ALL OF THESE PROBLEMS IS AVAILABLE FROM TWO WWW ROBOT JUDGING SITES. COMBINING THIS BOOK WITH A JUDGE GIVES AN EXCITING NEW WAY TO CHALLENGE AND IMPROVE YOUR PROGRAMMING SKILLS. THIS BOOK CAN BE USED FOR SELF-STUDY, FOR TEACHING INNOVATIVE COURSES IN ALGORITHMS AND PROGRAMMING, AND IN TRAINING FOR INTERNATIONAL COMPETITION. THE PROBLEMS IN THIS BOOK HAVE BEEN SELECTED FROM OVER 1,000 PROGRAMMING PROBLEMS AT THE UNIVERSIDAD DE VALLADOLID ONLINE JUDGE. THE JUDGE HAS RULED ON WELL OVER ONE MILLION SUBMISSIONS FROM 27,000 REGISTERED USERS AROUND THE WORLD TO DATE. WE HAVE TAKEN ONLY THE BEST OF THE BEST, THE MOST FUN, EXCITING, AND INTERESTING PROBLEMS AVAILABLE.

THE ALGORITHM DESIGN MANUAL - STEVEN S. SKIENA 2020-10-05

"MY ABSOLUTE FAVORITE FOR THIS KIND OF INTERVIEW PREPARATION IS STEVEN SKIENA'S THE ALGORITHM DESIGN MANUAL. MORE THAN ANY OTHER BOOK IT HELPED ME UNDERSTAND JUST HOW ASTONISHINGLY COMMONPLACE ... GRAPH PROBLEMS ARE -- THEY SHOULD BE PART OF EVERY WORKING PROGRAMMER'S TOOLKIT. THE BOOK ALSO COVERS BASIC DATA STRUCTURES AND SORTING ALGORITHMS, WHICH IS A NICE BONUS. ... EVERY 1-PAGER HAS A SIMPLE PICTURE, MAKING IT EASY TO REMEMBER. THIS IS A GREAT WAY TO LEARN HOW TO IDENTIFY HUNDREDS OF PROBLEM TYPES." (STEVE YEGGE, GET THAT JOB AT GOOGLE)
"STEVEN SKIENA'S ALGORITHM DESIGN MANUAL RETAINS ITS TITLE AS THE BEST AND MOST COMPREHENSIVE PRACTICAL ALGORITHM GUIDE TO HELP IDENTIFY AND SOLVE PROBLEMS. ... EVERY PROGRAMMER SHOULD READ THIS BOOK, AND ANYONE WORKING IN THE FIELD SHOULD KEEP IT CLOSE TO HAND. ... THIS IS THE BEST INVESTMENT ... A PROGRAMMER OR ASPIRING PROGRAMMER CAN MAKE." (HAROLD THIMBLEBY, TIMES HIGHER EDUCATION) "IT IS WONDERFUL TO OPEN TO A RANDOM SPOT AND DISCOVER AN INTERESTING ALGORITHM. THIS IS THE ONLY TEXTBOOK I FELT COMPELLED TO BRING WITH ME OUT OF MY STUDENT DAYS.... THE COLOR REALLY ADDS A LOT OF ENERGY TO THE NEW EDITION OF THE BOOK!" (CORY BART, UNIVERSITY OF DELAWARE) "THE IS THE MOST APPROACHABLE BOOK ON ALGORITHMS I HAVE." (MEGAN SQUIRE, ELON UNIVERSITY) --- THIS NEWLY EXPANDED AND UPDATED THIRD EDITION OF THE BEST-SELLING CLASSIC CONTINUES TO TAKE THE "MYSTERY" OUT OF DESIGNING ALGORITHMS, AND ANALYZING THEIR EFFICIENCY. IT SERVES AS THE PRIMARY TEXTBOOK OF CHOICE FOR ALGORITHM DESIGN COURSES AND INTERVIEW SELF-STUDY, WHILE MAINTAINING ITS STATUS AS THE PREMIER PRACTICAL REFERENCE GUIDE TO ALGORITHMS FOR PROGRAMMERS, RESEARCHERS, AND STUDENTS. THE READER-FRIENDLY ALGORITHM DESIGN MANUAL PROVIDES STRAIGHTFORWARD ACCESS TO COMBINATORIAL ALGORITHMS TECHNOLOGY, STRESSING DESIGN OVER ANALYSIS. THE FIRST PART, PRACTICAL ALGORITHM DESIGN, PROVIDES ACCESSIBLE INSTRUCTION ON METHODS FOR DESIGNING AND ANALYZING COMPUTER ALGORITHMS. THE SECOND PART, THE HITCHHIKER'S GUIDE TO ALGORITHMS, IS INTENDED FOR BROWSING AND REFERENCE, AND COMPRISES THE CATALOG OF ALGORITHMIC RESOURCES, IMPLEMENTATIONS, AND AN EXTENSIVE BIBLIOGRAPHY. NEW TO THE THIRD EDITION: -- NEW AND EXPANDED COVERAGE OF RANDOMIZED ALGORITHMS, HASHING, DIVIDE AND CONQUER, APPROXIMATION ALGORITHMS, AND QUANTUM COMPUTING -- PROVIDES FULL ONLINE SUPPORT FOR LECTURERS, INCLUDING AN IMPROVED WEBSITE

COMPONENT WITH LECTURE SLIDES AND VIDEOS -- FULL COLOR ILLUSTRATIONS AND CODE INSTANTLY CLARIFY DIFFICULT CONCEPTS -- INCLUDES SEVERAL NEW "WAR STORIES" RELATING EXPERIENCES FROM REAL-WORLD APPLICATIONS -- OVER 100 NEW PROBLEMS, INCLUDING PROGRAMMING-CHALLENGE PROBLEMS FROM LEETCODE AND HACKERRANK. -- PROVIDES UP-TO-DATE LINKS LEADING TO THE BEST IMPLEMENTATIONS AVAILABLE IN C, C++, AND JAVA ADDITIONAL LEARNING TOOLS: -- CONTAINS A UNIQUE CATALOG IDENTIFYING THE 75 ALGORITHMIC PROBLEMS THAT ARISE MOST OFTEN IN PRACTICE, LEADING THE READER DOWN THE RIGHT PATH TO SOLVE THEM -- EXERCISES INCLUDE "JOB INTERVIEW PROBLEMS" FROM MAJOR SOFTWARE COMPANIES -- HIGHLIGHTED "TAKE HOME LESSONS" EMPHASIZE ESSENTIAL CONCEPTS -- THE "NO THEOREM-PROOF" STYLE PROVIDES A UNIQUELY ACCESSIBLE AND INTUITIVE APPROACH TO A CHALLENGING SUBJECT -- MANY ALGORITHMS ARE PRESENTED WITH ACTUAL CODE (WRITTEN IN C) -- PROVIDES COMPREHENSIVE REFERENCES TO BOTH SURVEY ARTICLES AND THE PRIMARY LITERATURE WRITTEN BY A WELL-KNOWN ALGORITHMS RESEARCHER WHO RECEIVED THE IEEE COMPUTER SCIENCE AND ENGINEERING TEACHING AWARD, THIS SUBSTANTIALLY ENHANCED THIRD EDITION OF THE ALGORITHM DESIGN MANUAL IS AN ESSENTIAL LEARNING TOOL FOR STUDENTS AND PROFESSIONALS NEEDED A SOLID GROUNDING IN ALGORITHMS. PROFESSOR SKIENA IS ALSO THE AUTHOR OF THE POPULAR SPRINGER TEXTS, THE DATA SCIENCE DESIGN MANUAL AND PROGRAMMING CHALLENGES: THE PROGRAMMING CONTEST TRAINING MANUAL.

GUIDE TO COMPETITIVE PROGRAMMING - ANTTI LAAKSONEN 2018-01-02

THIS INVALUABLE TEXTBOOK PRESENTS A COMPREHENSIVE INTRODUCTION TO MODERN COMPETITIVE PROGRAMMING. THE TEXT HIGHLIGHTS HOW COMPETITIVE PROGRAMMING HAS PROVEN TO BE AN EXCELLENT WAY TO LEARN ALGORITHMS, BY ENCOURAGING THE DESIGN OF ALGORITHMS THAT ACTUALLY WORK, STIMULATING THE IMPROVEMENT OF PROGRAMMING AND DEBUGGING SKILLS, AND REINFORCING THE TYPE OF THINKING REQUIRED TO SOLVE PROBLEMS IN A COMPETITIVE SETTING. THE BOOK CONTAINS MANY "FOLKLORE" ALGORITHM DESIGN TRICKS THAT ARE KNOWN BY EXPERIENCED COMPETITIVE PROGRAMMERS, YET WHICH HAVE PREVIOUSLY ONLY BEEN FORMALLY DISCUSSED IN ONLINE FORUMS AND BLOG POSTS. TOPICS AND FEATURES: REVIEWS THE FEATURES OF THE C++ PROGRAMMING LANGUAGE, AND DESCRIBES HOW TO CREATE EFFICIENT ALGORITHMS THAT CAN QUICKLY PROCESS LARGE DATA SETS; DISCUSSES SORTING ALGORITHMS AND BINARY SEARCH, AND EXAMINES A SELECTION OF DATA STRUCTURES OF THE C++ STANDARD LIBRARY; INTRODUCES THE ALGORITHM DESIGN TECHNIQUE OF DYNAMIC PROGRAMMING, AND INVESTIGATES ELEMENTARY GRAPH ALGORITHMS; COVERS SUCH ADVANCED ALGORITHM DESIGN TOPICS AS BIT-PARALLELISM AND AMORTIZED ANALYSIS, AND PRESENTS A FOCUS ON EFFICIENTLY PROCESSING ARRAY RANGE QUERIES; SURVEYS SPECIALIZED ALGORITHMS FOR TREES, AND DISCUSSES THE MATHEMATICAL TOPICS THAT ARE RELEVANT IN COMPETITIVE PROGRAMMING; EXAMINES ADVANCED GRAPH TECHNIQUES, GEOMETRIC ALGORITHMS, AND STRING TECHNIQUES; DESCRIBES A SELECTION OF MORE ADVANCED TOPICS, INCLUDING SQUARE ROOT ALGORITHMS AND DYNAMIC PROGRAMMING OPTIMIZATION. THIS EASY-TO-FOLLOW GUIDE IS AN IDEAL REFERENCE FOR ALL STUDENTS WISHING TO LEARN ALGORITHMS, AND PRACTICE FOR PROGRAMMING CONTESTS. KNOWLEDGE OF THE BASICS OF PROGRAMMING IS ASSUMED, BUT PREVIOUS BACKGROUND IN ALGORITHM DESIGN OR PROGRAMMING CONTESTS IS NOT NECESSARY. DUE TO THE BROAD RANGE OF TOPICS COVERED AT VARIOUS LEVELS OF DIFFICULTY, THIS BOOK IS SUITABLE FOR BOTH BEGINNERS AND MORE EXPERIENCED READERS.

INTRODUCTION TO ALGORITHMS, THIRD EDITION - THOMAS H. CORMEN 2009-07-31

THE LATEST EDITION OF THE ESSENTIAL TEXT AND PROFESSIONAL REFERENCE, WITH SUBSTANTIAL NEW MATERIAL ON SUCH TOPICS AS VEB TREES, MULTITHREADED ALGORITHMS, DYNAMIC PROGRAMMING, AND EDGE-BASED FLOW. SOME BOOKS ON ALGORITHMS ARE RIGOROUS BUT INCOMPLETE; OTHERS COVER MASSES OF MATERIAL BUT LACK RIGOR. INTRODUCTION TO ALGORITHMS UNIQUELY COMBINES RIGOR AND COMPREHENSIVENESS. THE BOOK COVERS A BROAD RANGE OF ALGORITHMS IN DEPTH, YET MAKES THEIR DESIGN AND ANALYSIS ACCESSIBLE TO ALL LEVELS OF READERS. EACH CHAPTER IS RELATIVELY SELF-CONTAINED AND CAN BE USED AS A UNIT OF STUDY. THE ALGORITHMS ARE DESCRIBED IN ENGLISH AND IN A PSEUDOCODE DESIGNED TO BE READABLE BY ANYONE WHO HAS DONE A LITTLE PROGRAMMING. THE EXPLANATIONS HAVE BEEN KEPT ELEMENTARY WITHOUT SACRIFICING DEPTH OF COVERAGE OR MATHEMATICAL RIGOR. THE FIRST EDITION BECAME A WIDELY USED TEXT IN UNIVERSITIES WORLDWIDE AS WELL AS THE STANDARD REFERENCE FOR PROFESSIONALS. THE SECOND EDITION FEATURED NEW CHAPTERS ON THE ROLE OF ALGORITHMS, PROBABILISTIC ANALYSIS AND RANDOMIZED ALGORITHMS, AND LINEAR PROGRAMMING. THE THIRD EDITION HAS BEEN REVISED AND UPDATED THROUGHOUT. IT INCLUDES TWO COMPLETELY NEW CHAPTERS, ON VAN EMDE BOAS TREES AND MULTITHREADED ALGORITHMS, SUBSTANTIAL ADDITIONS TO THE CHAPTER ON RECURRENCE (NOW CALLED "DIVIDE-AND-CONQUER"), AND AN APPENDIX ON MATRICES. IT FEATURES IMPROVED TREATMENT OF DYNAMIC PROGRAMMING AND GREEDY ALGORITHMS AND A NEW NOTION OF EDGE-BASED FLOW IN THE MATERIAL ON FLOW NETWORKS. MANY EXERCISES AND PROBLEMS HAVE BEEN ADDED FOR THIS EDITION. THE INTERNATIONAL PAPERBACK EDITION IS NO LONGER AVAILABLE; THE HARDCOVER IS AVAILABLE WORLDWIDE.

ALGORITHM DESIGN AND APPLICATIONS - MICHAEL T. GOODRICH 2014-10-27

INTRODUCING A NEW ADDITION TO OUR GROWING LIBRARY OF COMPUTER SCIENCE TITLES, ALGORITHM DESIGN AND APPLICATIONS, BY MICHAEL T. GOODRICH & ROBERTO TAMASSIA! ALGORITHMS IS A COURSE REQUIRED FOR ALL COMPUTER SCIENCE MAJORS, WITH A STRONG FOCUS ON THEORETICAL TOPICS. STUDENTS ENTER THE COURSE AFTER GAINING HANDS-ON EXPERIENCE WITH COMPUTERS, AND ARE EXPECTED TO LEARN HOW ALGORITHMS CAN BE APPLIED TO A VARIETY OF CONTEXTS. THIS NEW BOOK INTEGRATES APPLICATION WITH THEORY. GOODRICH & TAMASSIA BELIEVE THAT THE BEST WAY TO TEACH ALGORITHMIC TOPICS IS TO PRESENT THEM IN A CONTEXT THAT IS MOTIVATED FROM APPLICATIONS TO USES IN SOCIETY, COMPUTER GAMES, COMPUTING INDUSTRY, SCIENCE, ENGINEERING, AND THE INTERNET. THE TEXT TEACHES STUDENTS ABOUT DESIGNING AND USING ALGORITHMS, ILLUSTRATING CONNECTIONS BETWEEN TOPICS BEING TAUGHT AND THEIR POTENTIAL APPLICATIONS, INCREASING ENGAGEMENT.

DESIGN AND ANALYSIS OF ALGORITHMS - SANDEEP SEN 2019-05-23

FOCUSES ON THE INTERPLAY BETWEEN ALGORITHM DESIGN AND THE UNDERLYING COMPUTATIONAL MODELS.

ALGORITHM DESIGN - MICHAEL T. GOODRICH 2001-10-15

MICHAEL GOODRICH AND ROBERTO TAMASSIA, AUTHORS OF THE SUCCESSFUL, DATA STRUCTURES AND ALGORITHMS IN JAVA, 2/E, HAVE WRITTEN ALGORITHM ENGINEERING, A

TEXT DESIGNED TO PROVIDE A COMPREHENSIVE INTRODUCTION TO THE DESIGN, IMPLEMENTATION AND ANALYSIS OF COMPUTER ALGORITHMS AND DATA STRUCTURES FROM A MODERN PERSPECTIVE. THIS BOOK OFFERS THEORETICAL ANALYSIS TECHNIQUES AS WELL AS ALGORITHMIC DESIGN PATTERNS AND EXPERIMENTAL METHODS FOR THE ENGINEERING OF ALGORITHMS. MARKET: COMPUTER SCIENTISTS; PROGRAMMERS.

ALGORITHMS -

FUNDAMENTALS OF MACHINE LEARNING FOR PREDICTIVE DATA ANALYTICS, SECOND EDITION - JOHN D. KELLEHER 2020-10-20

THE SECOND EDITION OF A COMPREHENSIVE INTRODUCTION TO MACHINE LEARNING APPROACHES USED IN PREDICTIVE DATA ANALYTICS, COVERING BOTH THEORY AND PRACTICE. MACHINE LEARNING IS OFTEN USED TO BUILD PREDICTIVE MODELS BY EXTRACTING PATTERNS FROM LARGE DATASETS. THESE MODELS ARE USED IN PREDICTIVE DATA ANALYTICS APPLICATIONS INCLUDING PRICE PREDICTION, RISK ASSESSMENT, PREDICTING CUSTOMER BEHAVIOR, AND DOCUMENT CLASSIFICATION. THIS INTRODUCTORY TEXTBOOK OFFERS A DETAILED AND FOCUSED TREATMENT OF THE MOST IMPORTANT MACHINE LEARNING APPROACHES USED IN PREDICTIVE DATA ANALYTICS, COVERING BOTH THEORETICAL CONCEPTS AND PRACTICAL APPLICATIONS. TECHNICAL AND MATHEMATICAL MATERIAL IS AUGMENTED WITH EXPLANATORY WORKED EXAMPLES, AND CASE STUDIES ILLUSTRATE THE APPLICATION OF THESE MODELS IN THE BROADER BUSINESS CONTEXT. THIS SECOND EDITION COVERS RECENT DEVELOPMENTS IN MACHINE LEARNING, ESPECIALLY IN A NEW CHAPTER ON DEEP LEARNING, AND TWO NEW CHAPTERS THAT GO BEYOND PREDICTIVE ANALYTICS TO COVER UNSUPERVISED LEARNING AND REINFORCEMENT LEARNING.

THE DESIGN OF APPROXIMATION ALGORITHMS - DAVID P. WILLIAMSON 2011-04-26

DISCRETE OPTIMIZATION PROBLEMS ARE EVERYWHERE, FROM TRADITIONAL OPERATIONS RESEARCH PLANNING (SCHEDULING, FACILITY LOCATION AND NETWORK DESIGN); TO COMPUTER SCIENCE DATABASES; TO ADVERTISING ISSUES IN VIRAL MARKETING. YET MOST SUCH PROBLEMS ARE NP-HARD; UNLESS $P = NP$, THERE ARE NO EFFICIENT ALGORITHMS TO FIND OPTIMAL SOLUTIONS. THIS BOOK SHOWS HOW TO DESIGN APPROXIMATION ALGORITHMS: EFFICIENT ALGORITHMS THAT FIND PROVABLY NEAR-OPTIMAL SOLUTIONS. THE BOOK IS ORGANIZED AROUND CENTRAL ALGORITHMIC TECHNIQUES FOR DESIGNING APPROXIMATION ALGORITHMS, INCLUDING GREEDY AND LOCAL SEARCH ALGORITHMS, DYNAMIC PROGRAMMING, LINEAR AND SEMIDEFINITE PROGRAMMING, AND RANDOMIZATION. EACH CHAPTER IN THE FIRST SECTION IS DEVOTED TO A SINGLE ALGORITHMIC TECHNIQUE APPLIED TO SEVERAL DIFFERENT PROBLEMS, WITH MORE SOPHISTICATED TREATMENT IN THE SECOND SECTION. THE BOOK ALSO COVERS METHODS FOR PROVING THAT OPTIMIZATION PROBLEMS ARE HARD TO APPROXIMATE. DESIGNED AS A TEXTBOOK FOR GRADUATE-LEVEL ALGORITHM COURSES, IT WILL ALSO SERVE AS A REFERENCE FOR RESEARCHERS INTERESTED IN THE HEURISTIC SOLUTION OF DISCRETE OPTIMIZATION PROBLEMS.

PYTHON PROGRAMMING - JOHN M. ZELLE 2004

THIS BOOK IS SUITABLE FOR USE IN A UNIVERSITY-LEVEL FIRST COURSE IN COMPUTING (CS1), AS WELL AS THE INCREASINGLY POPULAR COURSE KNOWN AS CS0. IT IS DIFFICULT FOR MANY STUDENTS TO MASTER BASIC CONCEPTS IN COMPUTER SCIENCE AND PROGRAMMING. A LARGE PORTION OF THE CONFUSION CAN BE BLAMED ON THE COMPLEXITY OF THE TOOLS AND MATERIALS THAT ARE TRADITIONALLY USED TO TEACH CS1 AND CS2. THIS TEXTBOOK WAS WRITTEN WITH A SINGLE OVERARCHING GOAL: TO PRESENT THE CORE CONCEPTS OF COMPUTER SCIENCE AS SIMPLY AS POSSIBLE WITHOUT BEING SIMPLISTIC.

THE ELEMENTS OF STATISTICAL LEARNING - TREVOR HASTIE 2013-11-11

DURING THE PAST DECADE THERE HAS BEEN AN EXPLOSION IN COMPUTATION AND INFORMATION TECHNOLOGY. WITH IT HAVE COME VAST AMOUNTS OF DATA IN A VARIETY OF FIELDS SUCH AS MEDICINE, BIOLOGY, FINANCE, AND MARKETING. THE CHALLENGE OF UNDERSTANDING THESE DATA HAS LED TO THE DEVELOPMENT OF NEW TOOLS IN THE FIELD OF STATISTICS, AND SPAWNED NEW AREAS SUCH AS DATA MINING, MACHINE LEARNING, AND BIOINFORMATICS. MANY OF THESE TOOLS HAVE COMMON UNDERPINNINGS BUT ARE OFTEN EXPRESSED WITH DIFFERENT TERMINOLOGY. THIS BOOK DESCRIBES THE IMPORTANT IDEAS IN THESE AREAS IN A COMMON CONCEPTUAL FRAMEWORK. WHILE THE APPROACH IS STATISTICAL, THE EMPHASIS IS ON CONCEPTS RATHER THAN MATHEMATICS. MANY EXAMPLES ARE GIVEN, WITH A LIBERAL USE OF COLOR GRAPHICS. IT SHOULD BE A VALUABLE RESOURCE FOR STATISTICIANS AND ANYONE INTERESTED IN DATA MINING IN SCIENCE OR INDUSTRY. THE BOOK'S COVERAGE IS BROAD, FROM SUPERVISED LEARNING (PREDICTION) TO UNSUPERVISED LEARNING. THE MANY TOPICS INCLUDE NEURAL NETWORKS, SUPPORT VECTOR MACHINES, CLASSIFICATION TREES AND BOOSTING--- THE FIRST COMPREHENSIVE TREATMENT OF THIS TOPIC IN ANY BOOK. THIS MAJOR NEW EDITION FEATURES MANY TOPICS NOT COVERED IN THE ORIGINAL, INCLUDING GRAPHICAL MODELS, RANDOM FORESTS, ENSEMBLE METHODS, LEAST ANGLE REGRESSION & PATH ALGORITHMS FOR THE LASSO, NON-NEGATIVE MATRIX FACTORIZATION, AND SPECTRAL CLUSTERING. THERE IS ALSO A CHAPTER ON METHODS FOR "WIDE" DATA (p BIGGER THAN n), INCLUDING MULTIPLE TESTING AND FALSE DISCOVERY RATES. TREVOR HASTIE, ROBERT TIBSHIRANI, AND JEROME FRIEDMAN ARE PROFESSORS OF STATISTICS AT STANFORD UNIVERSITY. THEY ARE PROMINENT RESEARCHERS IN THIS AREA: HASTIE AND TIBSHIRANI DEVELOPED GENERALIZED ADDITIVE MODELS AND WROTE A POPULAR BOOK OF THAT TITLE. HASTIE CO-DEVELOPED MUCH OF THE

STATISTICAL MODELING SOFTWARE AND ENVIRONMENT IN R/S-PLUS AND INVENTED PRINCIPAL CURVES AND SURFACES. TIBSHIRANI PROPOSED THE LASSO AND IS CO-AUTHOR OF THE VERY SUCCESSFUL AN INTRODUCTION TO THE BOOTSTRAP. FRIEDMAN IS THE CO-INVENTOR OF MANY DATA-MINING TOOLS INCLUDING CART, MARS, PROJECTION PURSUIT AND GRADIENT BOOSTING.

THE ALGORITHM DESIGN MANUAL - STEVEN S SKIENA 2009-04-05

THIS NEWLY EXPANDED AND UPDATED SECOND EDITION OF THE BEST-SELLING CLASSIC CONTINUES TO TAKE THE "MYSTERY" OUT OF DESIGNING ALGORITHMS, AND ANALYZING THEIR EFFICACY AND EFFICIENCY. EXPANDING ON THE FIRST EDITION, THE BOOK NOW SERVES AS THE PRIMARY TEXTBOOK OF CHOICE FOR ALGORITHM DESIGN COURSES WHILE MAINTAINING ITS STATUS AS THE PREMIER PRACTICAL REFERENCE GUIDE TO ALGORITHMS FOR PROGRAMMERS, RESEARCHERS, AND STUDENTS. THE READER-FRIENDLY ALGORITHM DESIGN MANUAL PROVIDES STRAIGHTFORWARD ACCESS TO COMBINATORIAL ALGORITHMS TECHNOLOGY, STRESSING DESIGN OVER ANALYSIS. THE FIRST PART, TECHNIQUES, PROVIDES ACCESSIBLE INSTRUCTION ON METHODS FOR DESIGNING AND ANALYZING COMPUTER ALGORITHMS. THE SECOND PART, RESOURCES, IS INTENDED FOR BROWSING AND REFERENCE, AND COMPRISES THE CATALOG OF ALGORITHMIC RESOURCES, IMPLEMENTATIONS AND AN EXTENSIVE BIBLIOGRAPHY. NEW TO THE SECOND EDITION: • DOUBLES THE TUTORIAL MATERIAL AND EXERCISES OVER THE FIRST EDITION • PROVIDES FULL ONLINE SUPPORT FOR LECTURERS, AND A COMPLETELY UPDATED AND IMPROVED WEBSITE COMPONENT WITH LECTURE SLIDES, AUDIO AND VIDEO • CONTAINS A UNIQUE CATALOG IDENTIFYING THE 75 ALGORITHMIC PROBLEMS THAT ARISE MOST OFTEN IN CLASSIC COMPUTING SCIENCE PROBLEMS IN JAVA AND A PATH TO SOLVE THEM • INCLUDES SEVERAL NEW "WAR STORIES" RELATING EXPERIENCES FROM REAL-WORLD APPLICATIONS • PROVIDES UP-TO-DATE LINKS LEADING TO THE VERY BEST ALGORITHM IMPLEMENTATIONS AVAILABLE IN C, C++, AND JAVA

HOW TO THINK ABOUT ALGORITHMS - JEFF EDMONDS 2008-05-19

THIS TEXTBOOK, FOR SECOND- OR THIRD-YEAR STUDENTS OF COMPUTER SCIENCE, PRESENTS INSIGHTS, NOTATIONS, AND ANALOGIES TO HELP THEM DESCRIBE AND THINK ABOUT ALGORITHMS LIKE AN EXPERT, WITHOUT GRINDING THROUGH LOTS OF FORMAL PROOF. SOLUTIONS TO MANY PROBLEMS ARE PROVIDED TO LET STUDENTS CHECK THEIR PROGRESS, WHILE CLASS-TESTED POWERPOINT SLIDES ARE ON THE WEB FOR ANYONE RUNNING THE COURSE. BY LOOKING AT BOTH THE BIG PICTURE AND EASY STEP-BY-STEP METHODS FOR DEVELOPING ALGORITHMS, THE AUTHOR GUIDES STUDENTS AROUND THE COMMON PITFALLS. HE STRESSES PARADIGMS SUCH AS LOOP INVARIANTS AND RECURSION TO UNIFY A HUGE RANGE OF ALGORITHMS INTO A FEW META-ALGORITHMS. THE BOOK FOSTERS A DEEPER UNDERSTANDING OF HOW AND WHY EACH ALGORITHM WORKS. THESE INSIGHTS ARE PRESENTED IN A CAREFUL AND CLEAR WAY, HELPING STUDENTS TO THINK ABSTRACTLY AND PREPARING THEM FOR CREATING THEIR OWN INNOVATIVE WAYS TO SOLVE PROBLEMS.

- DAVID KOPEC 2020-12-21

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