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Foundations Of Algorithms

FIFTH EDITION

FOUNDATIONS OF
ALGORITHMS
RICHARD E. NEAPOLITAN
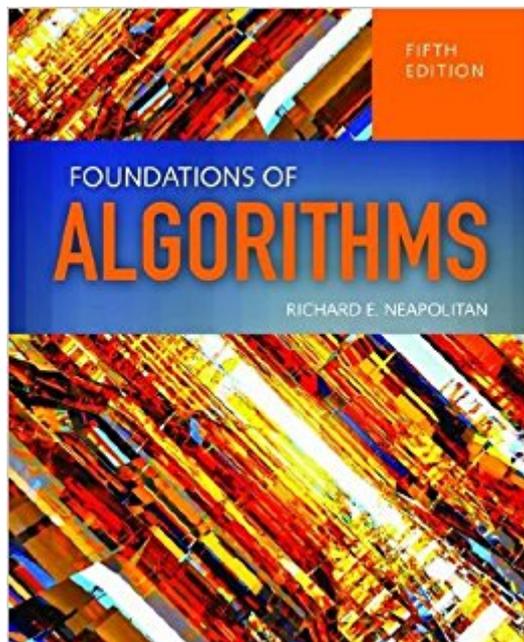
Synopsis

Foundations of Algorithms, Fifth Edition offers a well-balanced presentation of algorithm design, complexity analysis of algorithms, and computational complexity. Ideal for any computer science students with a background in college algebra and discrete structures, the text presents mathematical concepts using standard English and simple notation to maximize accessibility and user-friendliness. Concrete examples, appendices reviewing essential mathematical concepts, and a student-focused approach reinforce theoretical explanations and promote learning and retention. C++ and Java pseudocode help students better understand complex algorithms. A chapter on numerical algorithms includes a review of basic number theory, Euclid's Algorithm for finding the greatest common divisor, a review of modular arithmetic, an algorithm for solving modular linear equations, an algorithm for computing modular powers, and the new polynomial-time algorithm for determining whether a number is prime. The revised and updated Fifth Edition features an all-new chapter on genetic algorithms and genetic programming, including approximate solutions to the traveling salesperson problem, an algorithm for an artificial ant that navigates along a trail of food, and an application to financial trading. With fully updated exercises and examples throughout and improved instructor resources including complete solutions, an Instructorâ ™s Manual and PowerPoint lecture outlines, Foundations of Algorithms is an essential text for undergraduate and graduate courses in the design and analysis of algorithms. Key features include: â ¢ The only text of its kind with a chapter on genetic algorithms â ¢ Use of C++ and Java pseudocode to help students better understand complex algorithms â ¢ No calculus background required â ¢ Numerous clear and student-friendly examples throughout the text â ¢ Fully updated exercises and examples throughout â ¢ Improved instructor resources, including complete solutions, an Instructorâ ™s Manual, and PowerPoint lecture outlines

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Customer Reviews

An absolute gem in clarity and depth of topic. I only have a background in C/C++ with a little knowledge of discrete math. This book builds upon those knowledge and takes you in-depth with the different algorithms and how to analyze their complexity. I would buy this book for the first chapter alone- which contains one of the best explanations of algorithm complexity and efficiency, without stripping the academic overtone (formal definitions). There plenty of examples provided by the author is the perfect pedagogy for anyone who learns by example and I cannot overstate how eloquent and easy to understand the author makes the material out to be, eventhough they are quite difficult concepts. Dr. Neapolitan book should come highly recommended to anyone who struggled with other Algorithm books not just for a graduate or undergrad course, but also for self-study.

I tried those algorithm booksAlgorithm Design by KleibergAlgorithms (4th Edition) by SedgewickMy favorite is Neapolitan's, because1.It covers both design paradigms and complexity analysis.Kleinberg's focus on design paradigm, andSedgewick's focus on complexity analysis of already existing algorithms.Neapolitan is somewhere between those two.2.I like the author's presentation style.: it start with a very easy algorithm at the beginning of each chapter and gradually increase the difficulty.It really helps to understand the design paradigm, NOT to memorize each algorithm.3.It contains pseudo code, making the book practical.This also makes the reading more clear and compact.

This was a great algorithms book. I used it for a grad level algorithms course where we went in depth into every chapter of this book, and I am very glad that he chose this book. This books makes all of the chapters relatively easy, even when the algorithm being discussed is fairly difficult to grasp. I am going to be reading CLRS next during my free time to better understand some of the harder to grasp algorithms and in order to learn some algorithms not discussed in this book, as it is cheaper than this book and more highly regarded, but I still really enjoyed this book.

By far the best algorithm book I have ever bought. Less wordy than any other book and explain examples very well.

you will enjoy reading this one again and again.

I bought it as used, but it looks like new. I am very pleased with the purchase. I will need it for next semester course. It explains step by step and make the topic easy to follow.

Just as what I want. Like this book.

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