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Introduction To Algorithms, 3rd Edition (MIT Press)

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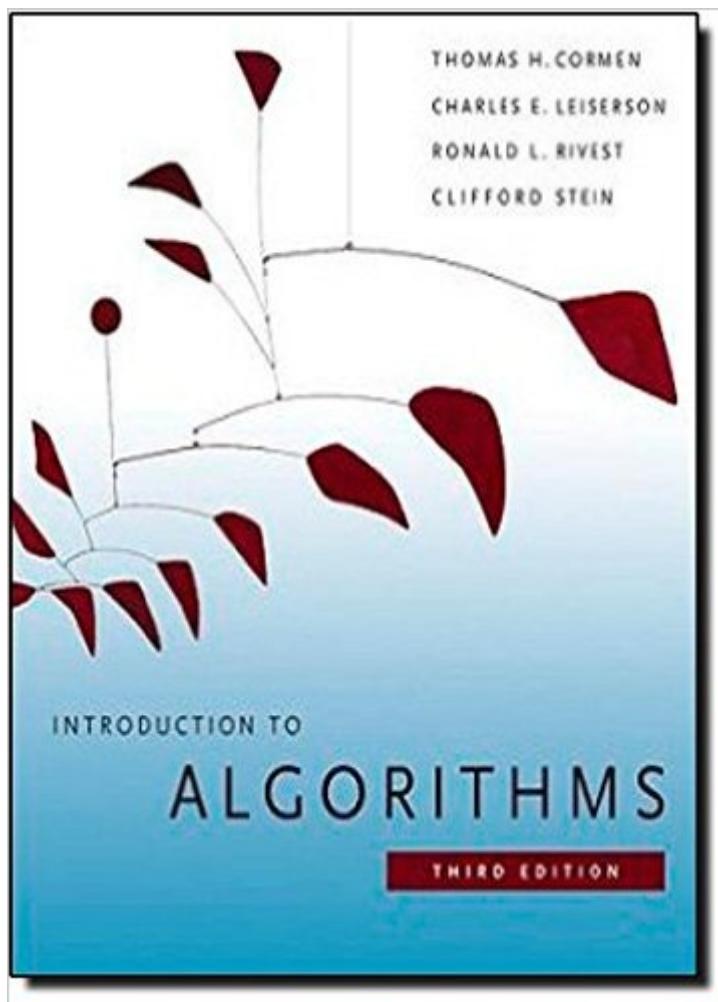
INTRODUCTION TO

ALGORITHMS

THIRD EDITION

Synopsis

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 new exercises and problems have been added for this edition. As of the third edition, this textbook is published exclusively by the MIT Press.

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Customer Reviews

As an educator and researcher in the field of algorithms for over two decades, I can unequivocally say that the Cormen et al book is the best textbook that I have ever seen on this subject. It offers an

incisive, encyclopedic, and modern treatment of algorithms, and our department will continue to use it for teaching at both the graduate and undergraduate levels, as well as a reliable research reference. (Gabriel Robins, Department of Computer Science, University of Virginia) Introduction to Algorithms, the 'bible' of the field, is a comprehensive textbook covering the full spectrum of modern algorithms: from the fastest algorithms and data structures to polynomial-time algorithms for seemingly intractable problems, from classical algorithms in graph theory to special algorithms for string matching, computational geometry, and number theory. The revised third edition notably adds a chapter on van Emde Boas trees, one of the most useful data structures, and on multithreaded algorithms, a topic of increasing importance. (Daniel Spielman, Department of Computer Science, Yale University)

Thomas Cormen is Professor of Computer Science at Dartmouth College. Charles Leiserson is Professor of Computer Science and Engineering at MIT. Ronald L. Rivest is Andrew and Erna Viterbi Professor of Electrical Engineering and Computer Science at MIT. Clifford Stein is Professor of Industrial Engineering and Operations Research at Columbia University.

My primary intent of buying the book was to implement efficient data processing algorithms for Data warehouse application in my project and in personal big data project i am working on. I see each algorithm has detailed mathematical proof, which i think you can skip and focus on just implementing the algorithm. I am sure this book is valuable for understanding the algorithm and you would do good job in tech interview. I see that most of IT companies such as Google, Apple etc.. focus more on how well the candidate understands and implements algorithm. So its more of back to basics :).

The printing is not clear.

I could not rave more about this textbook. I read it over the course of about 9 months and would literally read a proof and look around in amazement at how much sense it made. I learned so much from this book and most importantly, I learned it *well*.There are tons of other algorithm textbooks out there but don't let the other ones fool you; this is the omnibus and the leader. I've read others (Skiena, Algorithms in a Nutshell) and although they are for different audiences, I'd still recommend CLRS in every case.Don't be fooled by the Intro in the title. It is pretty math heavy and works a lot with proofs. Most of them are explained well but sometimes they need to be read a few times

because they are just more difficult material.Either way, get this book if you want to learn algorithms. I'd eat a rock if you read it and it didn't help you significantly in understanding algorithms.

I'm a software engineer without a CS degree. This book has filled in a lot of the blanks that in my knowledge of CS. It very clearly explains well known/discussed algorithms without getting too detailed in actual implementation.It does a good job at explaining use cases for algorithms and comparing similar algorithms without spending too much time on it.The book could use a reference for a lot of the symbols. I don't think that the book requires much prerequisite knowledge, but I've been guessing at what some of the symbols mean. This is a very heavy book, both literally and figuratively. I hate suggesting more content to add, but I think a few more pages to clarify what is used on every page would be valuable.

This was bought for an undergraduate course in Analysis of Algorithms.While the book definitely is a good book and is the go-to book for algorithms courses, it actually is more of a graduate level book.As my professor explains it, it is a very mathy book and is not suited well for undergraduate (even though he made us undergraduates get it...), it's only use in undergrad is the fact you can get it while in undergrad and take it with you to graduate school.So what makes undergraduate different from graduate to make this book suited for graduate level courses?Undergraduate: Don't care about proofs or the math part, just wanna know the algorithms at a basic understanding without knowing the reason the algorithm even works at the math level. Most professors can just teach the material straight up no book for undergraduate courses honestly, the professors got PHDs they can give undergraduate level explanations on the fly.Graduate: You are required to give mathematical proofs in graduate level courses, and are expected to know the algorithm at the deepest math level. Because of the work load, this is where this book shines because the professor cannot spend everyday till midnight teaching each student how to prove every algorithm, so this book is very well suited for graduate level because it is VERY math oriented.This is a book that focuses on the math of the algorithm, but that's not entirely bad because undergraduates still may be interested in that stuff, my course just doesn't care about the proofs because there already is a graduate course for the ones in the Master's program.As for the actual content and how easy it is to understand for an undergraduate... Well I do plan to go for PHD and this book has been very helpful for that because I am motivated to take the next step. I catch a snag once in a while on trying to understand the math part, but no pain no gain!I only rated 4 stars because I haven't read the whole book yet, so giving a 5 star would be a bit awkward....

This was a required text for me in my 2013 summer course. I'll be honest and say it's a pretty comprehensive guide to algorithm analysis, and I used it heavily in doing my homework and projects, but that doesn't mean I have to like it.It's an extremely dry read in the form of a large, heavy tome. It is better used as a reference guide (or as a weapon - yikes!) than light beach reading.I wanted to like it - I thought the topic was going to be interesting, but the required readings simply didn't hold my interest nearly as well as I thought they might.I would only recommend this book if you are obsessed with analyzing algorithms, or if you simply have to have it because it is required for a class you are taking.

This is a good book that covers a lot of ground at 1000+ pages thick. Algorithm definitions are quite comprehensive. But it's not an easy read and I wouldn't call it "an introduction".I have mathematical background and I used the book to brush up on my algorithms knowledge. It worked well for the purpose. For a beginner, though, the material will be tough to digest. The text is heavy on mathematical notation and many explanations are omitted. I imagine it was done to cut an extremely think volume to a reasonable size, but it will baffle a beginner.

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