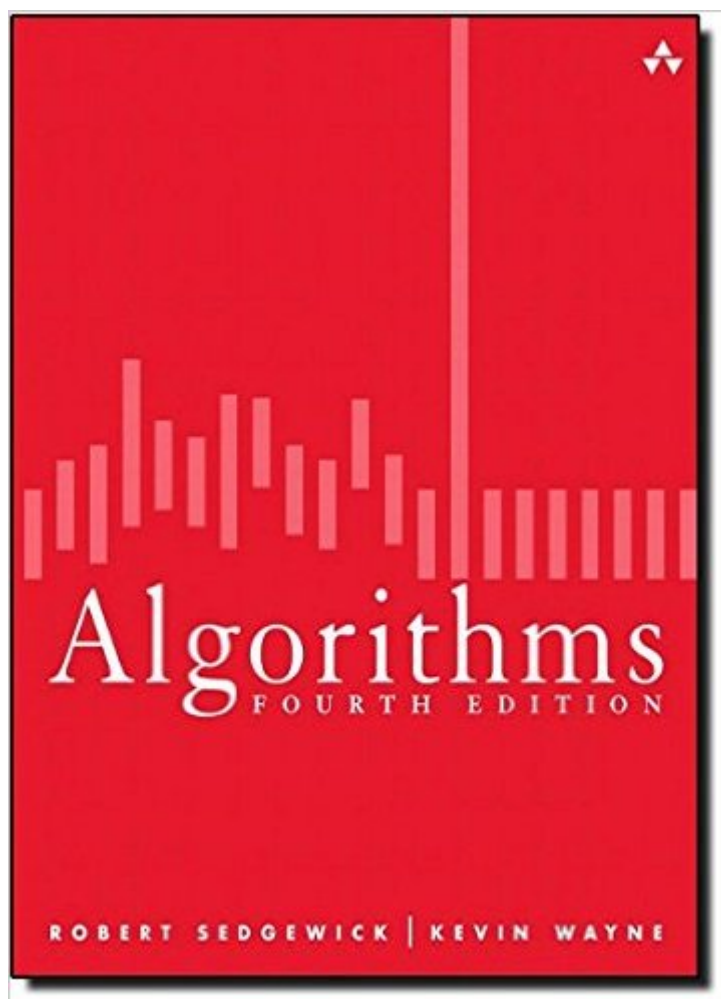


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Algorithms (4th Edition)



Synopsis

This fourth edition of Robert Sedgwick and Kevin Wayne's *Algorithms* is the leading textbook on algorithms today and is widely used in colleges and universities worldwide. This book surveys the most important computer algorithms currently in use and provides a full treatment of data structures and algorithms for sorting, searching, graph processing, and string processing--including fifty algorithms every programmer should know. In this edition, new Java implementations are written in an accessible modular programming style, where all of the code is exposed to the reader and ready to use. The algorithms in this book represent a body of knowledge developed over the last 50 years that has become indispensable, not just for professional programmers and computer science students but for any student with interests in science, mathematics, and engineering, not to mention students who use computation in the liberal arts. The companion web site, algs4.cs.princeton.edu, contains An online synopsis Full Java implementations Test data Exercises and answers Dynamic visualizations Lecture slides Programming assignments with checklists Links to related material The MOOC related to this book is accessible via the "Online Course" link at algs4.cs.princeton.edu. The course offers more than 100 video lecture segments that are integrated with the text, extensive online assessments, and the large-scale discussion forums that have proven so valuable. Offered each fall and spring, this course regularly attracts tens of thousands of registrants. Robert Sedgwick and Kevin Wayne are developing a modern approach to disseminating knowledge that fully embraces technology, enabling people all around the world to discover new ways of learning and teaching. By integrating their textbook, online content, and MOOC, all at the state of the art, they have built a unique resource that greatly expands the breadth and depth of the educational experience.

Book Information

Hardcover: 992 pages

Publisher: Addison-Wesley Professional; 4th edition (March 19, 2011)

Language: English

ISBN-10: 032157351X

ISBN-13: 978-0321573513

Product Dimensions: 7.7 x 1.4 x 9 inches

Shipping Weight: 3.2 pounds (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 stars See all reviews (146 customer reviews)

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Customer Reviews

"Algorithms" (4th edn) by Robert Sedgewick and Kevin Wayne (published by Addison-Wesley in March 2011) is one of the best computer science books I have ever read. It should be required reading for all CS students and all programmers - it aims to cover the "50 algorithms every programmer should know". Below I discuss some of the main reasons why I think the book is so good. Unlike its main rival, "An introduction to algorithms" by Cormen, Leiserson, Rivest and Stein (CLRS), "Algorithms" contains actual source code (written in a subset of Java). The importance of this cannot be overstated: it means students can actually use the algorithms to solve real problems. This enables a wealth of interesting and motivating applications --- from web search to genomics --- which are sprinkled throughout the book. (Source code and data are available on the book's website.) A natural worry with real code is that it will obscure the basic ideas. However, by careful use of abstract data types (classes such as queues, bags, hash tables, trees, DAGs, etc), the authors have done a masterful job at creating extremely concise and readable implementations. Using real code also forces one to address important implementation details that are easy to overlook. For example, it is well known that mergesort requires auxiliary memory. In the CLRS pseudocode, they allocate temporary storage space inside their merge routine. In practice it is much more efficient to allocate temporary storage space once, and then pass this in as a pointer to the merge function (or let it be a private member of the mergesort class). Where else can you learn such important tricks?

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