

<<算法技术手册>>

图书基本信息

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内容概要

创造稳定的软件需要有效的算法，但是程序设计者们很少能在问题出现之前就想到。

《算法技术手册（影印版）》描述了现有的可以解决多种问题的算法，并且能够帮助你根据需求选择并实现正确的算法——只需要一定的数学知识即可理解并分析算法执行。

相对于理论来说，本书更注重实际运用，书中提供了多种程序语言中可用的有效代码解决方案，可轻而易举地适合一个特定的项目。

有了这本书，你可以：
 解决特定编码问题或改进现有解决方案的执行；
 迅速确定与需要解决的问题相关的算法，并判定为什么这样的算法是正确的；
 探索C、C++、Java、Ruby中的算法解决方案，伴有实现诀窍；
 了解一个算法预期的执行情况及最佳的执行条件；
 发现不同算法中相似设计产生的冲突；
 学习先进的数据结构以改进算法效率。

有了《算法技术手册》，你可以学习如何改进算法的性能，这是软件应用成功的关键。

作者简介

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George是《Component-Based Software Engineering: Putting the Pieces Together》(Addison-Wesley)的合编者, Gary则是《Head First Object-Oriented Analysis and Design》(O'Reilly)的合著者。

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In the sortPointers function of Example 4 - 11, each element in the input is inserted into its associated bucket based upon the provided hash function; this takes linear, or $O(n)$, time. The elements in the buckets are not sorted, but because of the careful design of the hash function, we know that all elements in bucket b_j are smaller than the elements in bucket b_{j+1} . As the values are extracted from the buckets and written back into the input array, INSERTION SORT is used when a bucket contains more than a single element. For BUCKET SORT to exhibit $O(n)$ behavior, we must guarantee that the total time to sort each of these buckets is also $O(n)$. Let n_i define n_i to be the number of elements partitioned in bucket b_i . We can treat n_i as a random variable (using statistical theory). NOW consider the expected value. Each element in the input set has probability $p = 1/n$ of being inserted into a given bucket because each of these elements is uniformly drawn from the range $[0, 1)$. Therefore, $E[n_i] = n * p = n * (1/n) = 1$. From this equation we can compute the expected value of n_i^2 . This is critical because it is the factor that determines the COST of INSERTION SORT, which runs in a worst case of $O(n^2)$. We compute $E[n_i^2] = (1 - 1/n) + 1 = (2 - 1/n)$, which shows that $E[n_i^2]$ is a constant. This means that when we sum up the COSTS of executing INSERTION SORT on all n buckets, the expected performance COST remains.

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媒体关注与评论

“作者汲取了大量鲜为人知的文献资料，这本不可或缺的指南巩固了理论与实际操作的完美平衡。通过它来理解算法变得更加轻松容易。”
——Matthew Russell，高级技术总监，Digital Reasoning System；《Dojo：The Definitive Guide》的作者（OReilly）

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