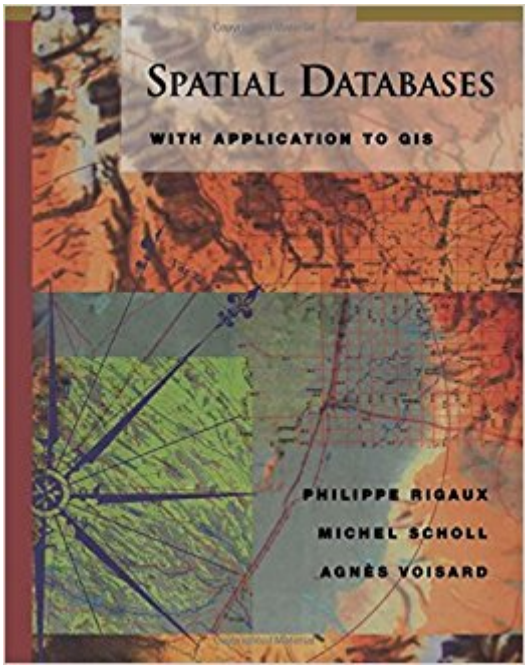
Spatial Databases: With Application To GIS (The Morgan Kaufmann Series In Data Management Systems)



Synopsis

Spatial Databases is the first unified, in-depth treatment of special techniques for dealing with spatial data, particularly in the field of geographic information systems (GIS). This book surveys various techniques, such as spatial data models, algorithms, and indexing methods, developed to address specific features of spatial data that are not adequately handled by mainstream DBMS technology.The book also reviews commercial solutions to geographic data handling: ArcInfo, ArcView, and Smallworld GISs; and two extensions to the relational model, PostgreSQL and Oracle Spatial. The authors examine these underlying GIS technologies, assess their strengths and weaknesses, and consider specific uses for which each product is best suited. * Examines the strengths of various query languages and approaches to query processing.* Explains the use of computational geometry in spatial databases GISs, providing necessary background and an in-depth look at key algorithms.* Covers spatial access methods, including the R-tree and several space-driven structures, and is filled with dozens of helpful illustrations.

Book Information

Series: The Morgan Kaufmann Series in Data Management Systems
Hardcover: 410 pages
Publisher: Morgan Kaufmann; 1 edition (June 1, 2001)
Language: English
ISBN-10: 1558605886
ISBN-13: 978-1558605886
Product Dimensions: 7.7 x 1.2 x 9.6 inches
Shipping Weight: 2.3 pounds (View shipping rates and policies)
Average Customer Review: 4.8 out of 5 starsÂ Â See all reviewsÂ (4 customer reviews)
Best Sellers Rank: #1,195,788 in Books (See Top 100 in Books) #109 inÂ Books > Computers & Technology > Programming > Graphics & Multimedia > GIS #272 inÂ Books > Science & Math > Earth Sciences > Geography > Information Systems #506 inÂ Books > Computers & Technology > Networking & Cloud Computing > Network Administration > Storage & Retrieval

Customer Reviews

This textbook is an excellent resource for people specifically interested in the theoretical nuts and bolts of spatial databases. The book covers a lot of ground in just over 400 pages. It would be an excellent text for an advanced GIS programming course for either geography students or computer science students. For the geography student, the text provides an excellent coverage of database

concepts while drawing on familiar topics. For the computer science student, the book extends basic knowledge of DBMS for spatial applications.The book is divided into eight chapters. Each chapter is completed with an excellent bibliographical review of relevant publications. This review, alone, is worth the price of the book.Chapter 1: Introduction to Spatial Database: Covers basic concepts of SQL, DBMS and spatial data.Chapter 2: Representation of Spatial Objects: This chapter should be familiar to anyone with a GIS background but would fill in the gaps for computer science students. The section on formats and standards is a bit dated but provides a nice theoretical background - especially for the Census TIGER data.Chapter 3: Logical Models and Query Languages: Opposite of Chapter 2, this chapter will challenge the Geography student while further grounding the Computer Science student in GIS data types.Chapter 4: The Constraint Data Model: Here the authors choose to introduce some unique material in the form of the constraint data model. The model is designed specifically to encode spatial data in a basic relational model. The chapter even breaks down the model into relational algebra statements. For most teaching purposes, this chapter can be skipped.Chapter 5: Computational Geometry: An odd gem in a text on spatial databases.

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