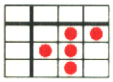

Topics in Information Systems

Query Processing in Database Systems

Edited by
Won Kim
David S. Reiner
Don S. Batory

Springer-Verlag
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Editors:

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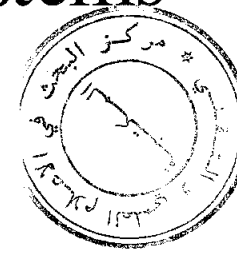

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Topics in Information Systems

Series Description

Dramatic advances in hardware technology have opened the door to a new generation of computer systems. At the same time, the growing demand for information systems of ever-increasing complexity and precision has stimulated the need in every area of Computer Science for more powerful higher-level concepts, techniques, and tools.

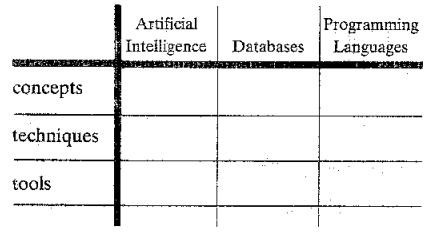
Future information systems will be expected to acquire, maintain, retrieve, manipulate, and present many different kinds of information. These systems will require user-friendly interfaces, powerful reasoning capabilities, and shared access to large information bases. Whereas the needed hardware technology appears to be within reach, the corresponding software technology for building these systems is not. The required dramatic improvements in software productivity will come from advanced application development environments based on powerful new techniques and languages.

The **concepts, techniques**, and **tools** necessary for the design, implementation, and use in future information systems are expected to result from the integration of those being developed and used in currently disjoint areas of Computer Science. Several areas bring their unique viewpoints and technologies to existing information processing practice. One key area is **Artificial Intelligence** (AI) which provides knowledge representation and reasoning capabilities for knowledge bases grounded on semantic theories of information for correct interpretation. An equally important area is **Databases** which provides means for building and maintaining large, shared databases based on computational theories of information for efficient processing. A third important area is **Programming Languages** which provides a powerful tool kit for the construction of large programs based on linguistic and methodological theories to ensure program correctness. To meet evolving information systems requirements, additional research viewpoints and technologies are or will be required from such areas as **Software Engineering, Computer Networks, Machine Architectures,** and **Office Automation.**

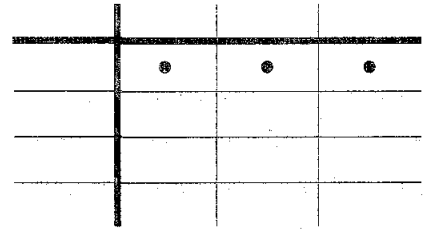
Although some integration of research results has already been achieved, a quantum leap in technological integration is needed to meet the demand for future information systems. This integration is one of the major challenges to Computer Science in the 1980s.

Topics in Information Systems is a series intended to report significant contributions on the integration of concepts, techniques, and tools that advance new technologies for information system construction. The series logo symbolizes the scope of topics to be covered and the basic theme of integration.

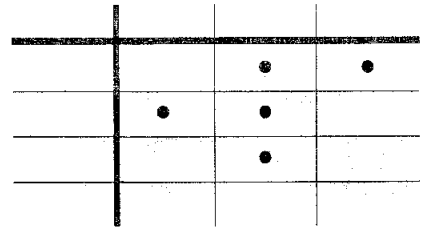
The logo will appear on each book to indicate the topics addressed.



The first book of the series, "On Conceptual Modelling: Perspectives from Artificial Intelligence, Databases and Programming Languages", Michael L. Brodie, John Mylopoulos, and Joachim W. Schmidt (Eds.), February 1984, which deals with concepts in the three areas, has the logo:



The second book, "Query Processing in Database Systems", Won Kim, David S. Reiner, and Donald S. Batory (Eds.), March 1985, which deals with Database and Programming Language concepts, AI and Database techniques, and Database system tools, has the logo:



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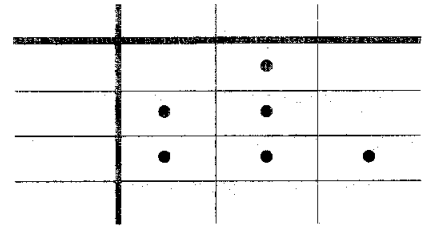

Future books in the series will provide timely accounts of ongoing research efforts to reshape technologies intended for information system development.

March, 1985

Michael L. Brodie
John Mylopoulos
Joachim W. Schmidt

Table of Contents

Section VIII. Physical Database Design