

Review: An Introduction to Database Systems, by C.J. Date
Addison-Wesley Publishing Co., 1975; 366 pages

C.J. Date's book, An Introduction to Database Systems, is one of the first textbooks to appear on the subject of data base management. As such, it provides a much-needed synthesis of the various ideas and issues concerning this very popular topic. It also provides, through descriptions and examples, a better introduction to complicated topics, such as the relational data base model and IMS storage structures, than is obtainable from journal articles or software manuals. In addition, a good set of many annotated references, are provided for each topic covered.

The text is divided into five parts. Part 1 provides a brief overview of "database system architecture". This part includes an introduction to basic concepts and terminology used in describing database systems (Chapter 1), a description of some fundamental storage structures (Chapter 2), and a brief overview of the three different approaches to database systems treated in the subsequent chapters (Chapter 3).

Parts 2, 3 and 4 treat the relational, hierarchical (IMS) and network (DBTG) approaches to database systems in detail. For each, Date describes the way in which that approach views the basic data model, the logical structures and language(s) used for data description, and the language and level of understanding required for data manipulation. Each chapter concluded with exercises for the reader, most of which have solutions included in the text.

For the relational approach, Date describes both the relational calculus and relational algebra manipulation languages. He devotes an entire chapter to the motivation for and process of normalization, again with good examples.

Date uses IMS to illustrate the hierarchical approach to database management. He describes the several physical and logical data descriptions required by IMS (PSB's, PCB's, and PDB's). The operations and examples of Data Language/I (DL/I) are presented and illustrated. Also included is a chapter on the storage structures used by IMS (HSAM, HISAM, HDAM, and HIDAM).

Part 4 is devoted to the network, or DBTG, approach. Here Date uses hypothetical examples based on the DBTG proposal. A good discussion of the concept of "currency" is presented with helpful examples. However, the concepts of SET OCCURRENCE SELECTION and LOCATION MODE are presented in two places (with respect to data storage and retrieval) and, as a result, their explication suffers.

Part 5 of the book contains two chapters on security and integrity issues. In each chapter, he addresses the topic in "general" (i.e., relational) terms, and then briefly discusses the IMS and DBTG approaches. Chapter 19, on database security,

focuses mainly on definition and enforcement of access constraints. There is also a brief discussion of "scrambling" as a defense against unauthorized access. Chapter 20 discusses "integrity constraints", which Date defines to include edit checks, procedures for control over multiple updates, and backup-and-recovery procedures.

Date's book is a readable introduction to a wide variety of topics concerning database management. However, a reader may have some reservations concerning the book. It has an acknowledged, but nonetheless strong, bias toward the relational approach to database management. Its style is often choppy, due to a plethora of qualifying footnotes on matters such as terminology, software details, etc. It does not deal with certain issues of interest to persons using or preparing to implement database systems; e.g., data dictionary/directory systems, the role and function of the database administrator, and the existence of other DBMS packages featuring different approaches to database management

I have used the book as a text in a course on file and database management at the Graduate School of Business Administration at New York University and plan to do so again.

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A feature of Interactive Retrieval Systems.

Thomas H. Martin.
Stanford Univ., Calif. Inst. for Communication Research.
Sep 74; 104p SU-COMM-ICR-74-1
PB-235 952/9WC PCS\$5.25/MF\$2.25



The command language features of eleven different on-line information retrieval systems are presented in terms of the functional needs of a searcher sitting at a terminal. Functional areas considered are: becoming familiar with the system, receiving help when in trouble, regulating usage, selecting a data base, formulating simple queries, expressing single concepts, interconnecting concepts, displaying results simply, and controlling the display. Features felt most essential to on-line searching are live help, users' guides, boolean operators, search field control, suffix removal, relational operators, dictionary access, request sets, search review, predefined formats, on-line formatting, and off-line printing.