



Information processing systems — Concepts and terminology for the conceptual schema and the information base

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The reasons which led to the decision to publish this document in the form of a technical report type 3 are explained in the Preface.

PREFACE.

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0.1. PURPOSE OF THE REPORT.

It is expected that future data base management systems will include a component for handling conceptual schemata. This Report explains the roles and concepts for a conceptual schema with the intention of providing a framework for discussion and for the design of conceptual schema languages. The rules described in the conceptual schema control to a large extent what may or may not happen in an information system and a data base. Therefore this Report is not limiting its attention to the conceptual schema alone, but also considers basic concepts for the mechanisms involved in manipulating a conceptual schema and a data base.

This Report is aimed at designers of information systems and data bases as well as suppliers of conceptual schema facilities. The provided framework will prepare the way for eventual standardization in the area of data base management. It does not, however, describe any particular method for using such facilities. In the meantime, the general principles in this Report can be used to evaluate emerging DBMS facilities.

The approaches and associated languages described in appendices to the Report are intended to be explanatory only and are not ipso facto candidates for a standard conceptual schema language.

0.2. STRUCTURE OF THE REPORT.

The main body of the Report (chapters one through four) contains the fundamental concepts and terminology for the conceptual schema, the information base, and the mechanisms involved in manipulating them.

Chapter one gives an introduction to the subject, mentions the origins of some ideas developed in the Report, and discusses some major topics. In particular, it explains what a conceptual schema is used for, its roles, and requirements for a conceptual schema facility.

Chapter two explains fundamental concepts, provides definitions of the concepts and terms, and develops some of the consequences of those concepts and definitions. Both static and dynamic aspects of the information system are considered and explained. Some readers may wish to skip this chapter on the first reading.

Chapter three discusses some aspects of implementation. In particular, principles are formulated for the contents and scope of a conceptual schema, and an information system architecture based on three levels is outlined.

Chapter four reviews some approaches to information modelling and manipulation for data bases. The approaches selected for illustration are outlined in more detail in appendices to the Report.