Chapter 6

E R Model of Library In-House Operations Acquisition, Circulation

6.1 Preamble.

The entity-relationship model has existed for more than 20 years ago since the original description of Chan\textsuperscript{3,4}. However E R modeling was never standardized. In an effort to standardized this, a graphical modeling tool called E-R diagram, based on E-R model had been proposed. In this diagram visual symbol are used to indicate each kind of constraints of the E-R model. In other words, the model can be carried out with the help of pictorial representation of entities, attributes and relationship. In this chapter the concepts involved in complex E R modeling for BDMS is considered. The E R model includes semantic concepts other than entities relationship and attributes to study a complete picture mapping of data with E R model for BDMS \textsuperscript{13,14,15}.

6.2 E R Model.

The basic entity-relationship model as originally proposed by Chen\textsuperscript{7}, provides two modeling primitives (i.e. entities and relationships) for representing database. The E-R data model vies the real world as a set of basic objects (entities) and relationships among these objects. Formally, the basic entity-relationship schema is denoted as a set \( S = \{D, A, E, R\} \) where \( D \) is the database domain, \( A \) is the set of attributes, \( E \) is the set of entity sets and \( R \) is the set of relationship sets. An entity may be concrete (a user, or a book) or abstract (holiday or a concept) \textsuperscript{9,10,12,14} which is an object that exists and is distinguishable from other objects. For instance \textit{ABHAY KUMAR RASTOGI, ID 9962102} is an entity, and he could be uniquely identified as one particular student of Indian Institute of Technology, Kharagpur. This entity-relationship diagram depicts the major concepts and relationships needed for managing BDMS for capturing the necessary attributes and relationships.
Figure 6.1 - E R Diagram Symbol.

Figure 6.2- E R Diagram for library In-House Operations Circulation.
Fig 6.3 - E-R Diagram for Circulation

Fig 6.4 – E R Diagram for item, reserve, borrower

Figure 6.5 - E R Diagram for library In-house operations of Acquisition.
1. AGRAWAL, R., and GEHANI, N.H. Ode (Object oriented Environment): The
Language and the Data Model. In Proceeding of the ACM SIGMOD International
2. BRANT, D and MIRANKER,D. Index Support and Rule Activation. In Proceeding
of the ACM SIGMOD International Conference on Management of Data. May
3. CHEN, P. The entity-relationship model: Towards a unified view or data.
ACM Transactions on Database Systems 1, 1 (March 1976), 9-36.
4. CHEN, P., Ed. Entity-Relationship Approach: The Use of the ER Concept in
knowledge Representation. North Holland, Amsterdam, 1995
5. CODD, E. A relational model for large shared data banks. Communications of the
6. DELCAMBRE L. and ETHERDGE, J. The Relational Production Language: A
Production language of Relational Databases. In Expert Database System-
pp.333-51.
Journal of Association of Computing Machinery: Jl, 3 (July 1994).
8. KENT, W. Limitations of record-oriented information models. ACM
Transactions on Database Systems 4, I (March 1999), 107-131.
9. KING, R., AND McLEOD, D. A unified model and methodology for conceptual
database design. In On Conceptual Modeling, Perspectives from Artificial
Intelligence, Databases, and Programming Languages, M. Brodie, J.
Mylopoulos, and J. Schmidt, Eds. Springer Verlag, New York, 1994, pp. 313-
327.
CM.SIGACT News- SIGMOD Symposium on Principles of Database Systems


