Entity-Relationship Model

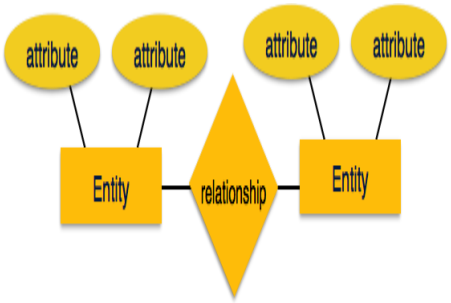
Entity-Relationship (ER) Model is based on the notion of real-world entities and relationships among them. While formulating real-world scenario into the database model, the ER Model creates entity set, relationship set, general attributes and constraints.

ER Model is best used for the conceptual design of a database.

ER Model is based on − Entities and their attributes. Relationships among entities.

Entity − An entity in an ER Model is a real-world entity having properties called attributes. Every attribute is defined by its set of values called domain. For example, in a school database, a student is considered as an entity. Student has various attributes like name, age, class, etc.

Relationship − The logical association among entities is called relationship. Relationships are mapped with entities in various ways. Mapping cardinalities define the number of association between two entities.

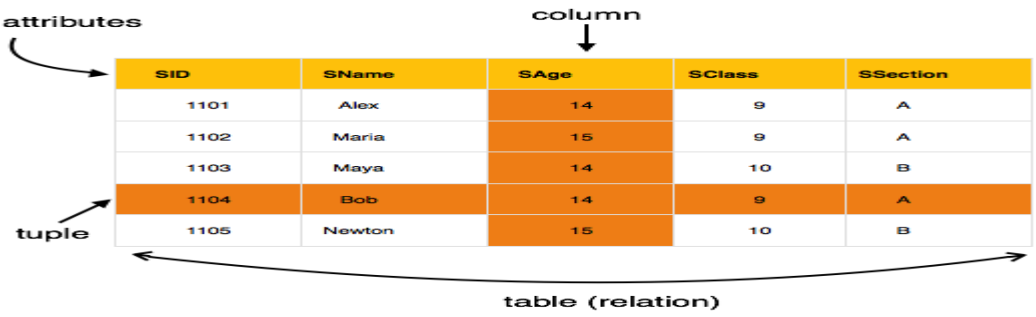


Mapping cardinalities −

one to one, one to many, many to one, many to many

Relational Model: The most popular data model in DBMS is the Relational Model. It is more scientific a model than others. This model is based on first-order predicate logic and defines a table as an n-ary relation.

Relational Model Table: The main highlights of this model are − Data is stored in tables called relations. Relations can be normalized. In normalized relations, values saved are atomic values. Each row in a relation contains a unique value. Each column in a relation contains values from a same domain.



SID	SName	SAge	SClass	SSection
1101	Alex	14	9	A
1102	Maria	15	9	A
1103	Maya	14	10	B
1104	Bob	14	9	A
1105	Newton	15	10	B

Hierarchical model in DBMS

In hierarchical model, data is organized into a tree like structure with each record is having one parent record and many children. The main drawback of this model is that, it can have only one to many relationships between nodes.

Sample Hierarchical Model Diagram:

Lets say we have few students and few courses and a course can be assigned to a single student only, however a student take any number of courses so this relationship becomes one to many.