

Programme: B.Sc.

Subject: Computer Science

Semester: III

Paper Code: CSC103

Paper Title: Database Management System

Unit II: Conceptual design and Entity Relationship model

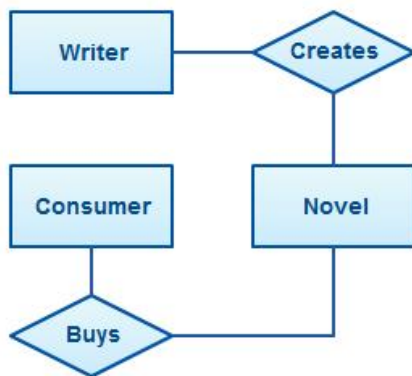
Module Name: Any two Examples of Entity Relationship Diagram (ERD)

Module No: 07

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What is an ER diagram?

An Entity Relationship Diagram (ERD) is a visual representation of **different entities within a system and how they relate to each other**. For example, the elements writer, novel, and a consumer may be described using ER diagrams the following way:



How to Draw ER Diagrams

1. **Identify all the entities** in the system. An entity should appear only once in a particular diagram. Create rectangles for all entities and name them properly.
2. **Identify relationships** between entities. Connect them using a line and add a diamond in the middle describing the relationship.
3. **Add attributes** for entities. Give meaningful attribute names so they can be understood easily.

ER Diagram Best Practices

1. Provide a precise and appropriate name for each entity, attribute, and relationship in the diagram. Terms that are simple and familiar always beats vague, technical-sounding words. In naming entities, remember to use singular nouns. However, adjectives may be used to distinguish entities belonging to the same class (part-time employee and full-time employee, for example). Meanwhile attribute names must be meaningful, unique, system-independent, and easily understandable.
2. Remove vague, redundant or unnecessary relationships between entities.
3. Never connect a relationship to another relationship.

4. Make effective use of colors. You can use colors to classify similar entities or to highlight key areas in your diagrams.

Benefits of ER diagrams

ER diagrams constitute a very useful framework for creating and manipulating databases. Firstly, Designers can use ER diagrams to easily communicate with developers, customers, and end users, Second, ER diagrams are readily translatable into relational tables which can be used to quickly build databases. In addition, ER diagrams can directly be used by database developers as the blueprint for implementing data in specific software applications. Lastly, ER diagrams may be applied in other contexts such as describing the different relationships and operations within an organization.

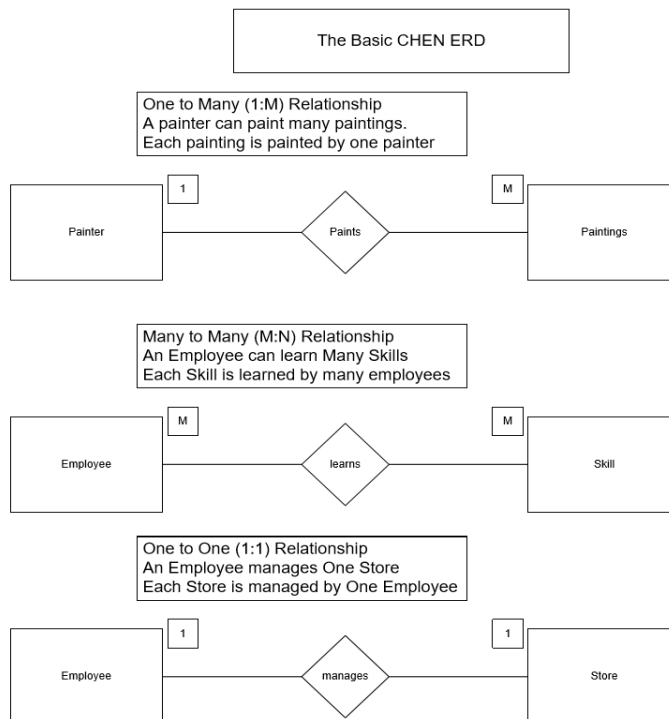
Business Rules are narrative descriptions of policies, procedures, or principles within an organization.

Examples: A pilot cannot be on duty for more than ten hours during a twenty-four hour period. A professor may teach up to four classes during any one semester.

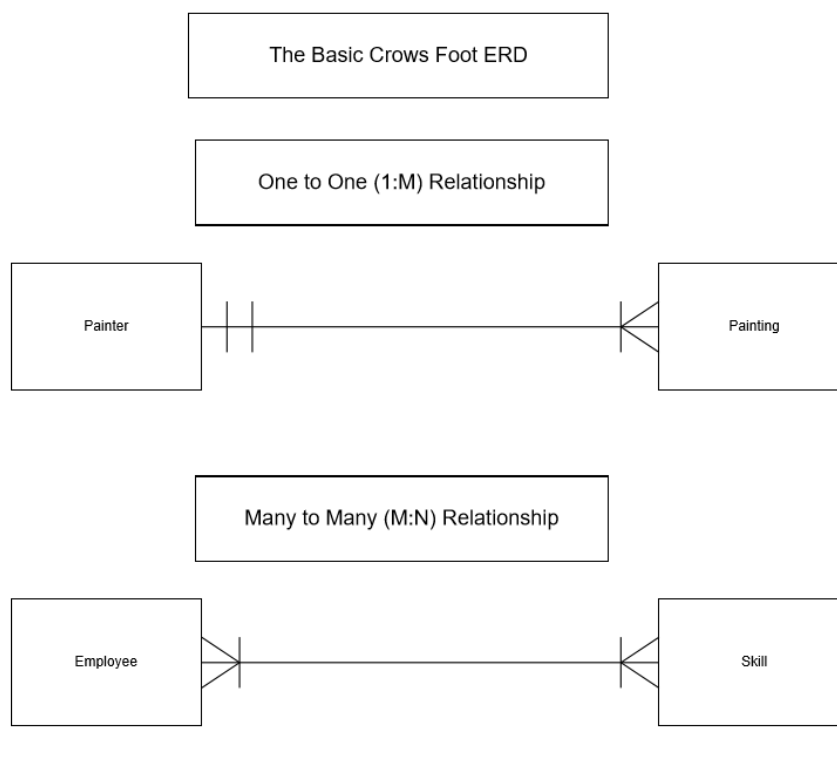
Business Rules are essential to DB Design for several reasons:

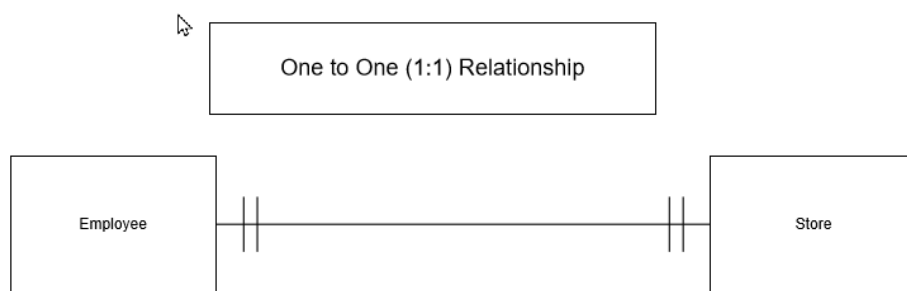
4. They help standardize the companies view of data
5. They constitute a communications tool between users and designers
6. They allow the designer to understand the nature, role and scope of the data
7. They allow the designer to understand business processors
8. They allow the designer to develop appropriate relationship participation rules and constraints

Notations used for cardinality representation:



A more current version of the **ERD** is the **Crow's Foot Model** derived from the 3 prong symbol used to represent the **Many** side of the relationship. There is **NO** diamond to indicate the relationship.





Chen and the Crows Foot are the basic ERD's used.