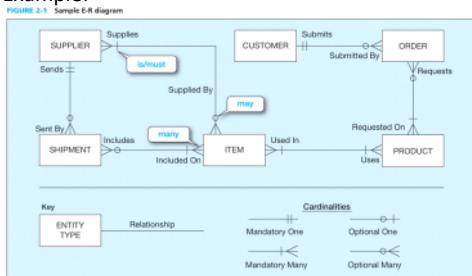


THE E-R MODEL: AN OVERVIEW

Entity relationship Model (E-R Model): is a detailed, logical representation of the data for an organization or for a business area.

- The E-R model is expressed in terms of entities in the business environment, the relationships (or associations) among those entities, and the attributes (or properties) of both the entities and their relationships.
- E-R model is normally expressed as an entity-relationship diagram which is a graphical representation of the E-R model.
- Example:



Entities = rectangles

Relationships = lines connecting entities

Cardinalities: how many entities of one kind relate to how many entities of another kind

Examples:

- o A SUPPLIER may supply many ITEMS (by "may supply," we mean the supplier may not supply any items).
- o Each ITEM is supplied by any number of SUPPLIERS (by "is supplied," we mean that the item must be supplied by at least one supplier).
- o A CUSTOMER may submit any number of ORDERS. However, each ORDER must be submitted by exactly one CUSTOMER.

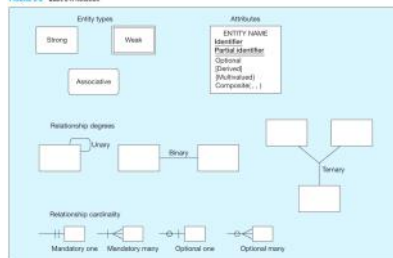
Business Rules: There are actually two business rules for each relationship, one for each direction from one entity to the other:

Example:

- o <entity> <minimum cardinality> <relationship> <maximum cardinality> <entity>
- o <CUSTOMER> <may> <Submit> <any number> <ORDER>

E-R Model Notation

FIGURE 2-2 Basic E-R notation



basic E-R notation