

## Chapter 5 - Beyond the First ER Diagram

This chapter further develops the ER design methodology by expanding on the previous steps:

3. Examines attributes of the primary entity
4. What to do if another entity is needed
5. Developing the relationship between the two entities

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### 5.2 - Examining an Entity: Changing an Attribute to be an Entity

Recall, the definition of an entity is something about which we wanted to record information.

The first indicator that an attribute should be considered an entity is that we need to store information about the attribute.

- when this happens after talking with the user, be sure to create a second ER diagram that models this entity

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### 5.3 - Defining a Relationship for Our New Entity

Databases are designed to store *related* data.

*relationship* - in an ER diagram is a connection between two or more entities or between one entity and itself (*recursive relationship*, covered in chapter 8)

- in the Chen-like model, a relationship is depicted by a diamond on the line that joins the two entities
- sense of relationship is that of a verb connecting two nouns (entities)

*relationship name* - usually a verb or verb phrase that denotes the connection between entities

The *degree of relationship* refers to the number of entities that participate in the relationship.

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#### 5.4 - A Preliminary Grammar for ER Diagrams

For each relationship, we add the following grammar outline:

*“A(n) Entity1 Relationship Entity2 (active voice) and a(n) Entity2 Relationship Entity1 (passive voice).”*

For example,

*“A STUDENT attends a SCHOOL, and a SCHOOL is attended by a STUDENT.”*

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#### 5.5 - Defining A Second Entity