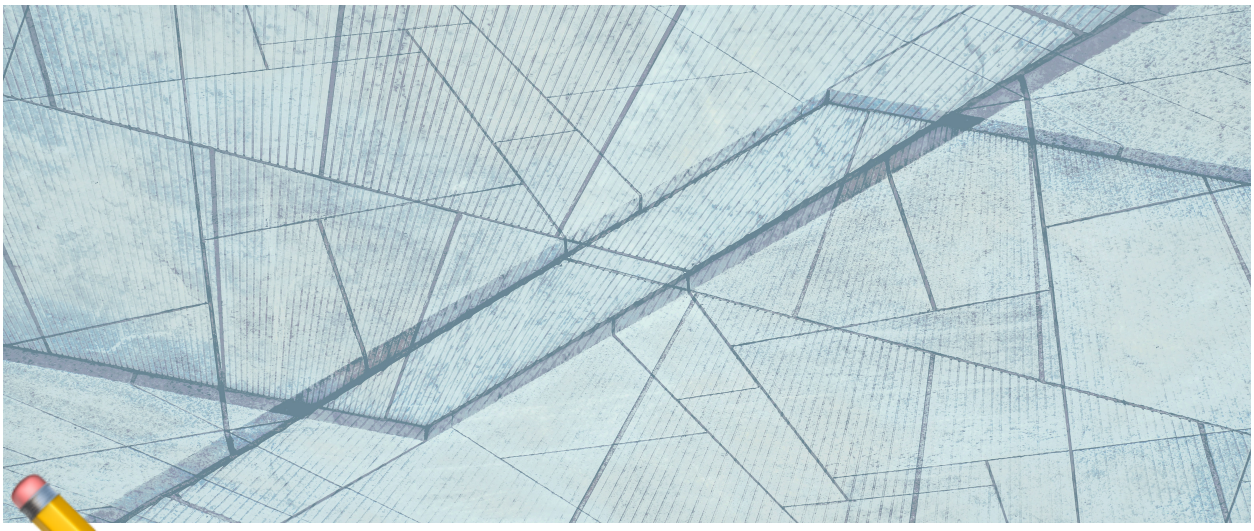
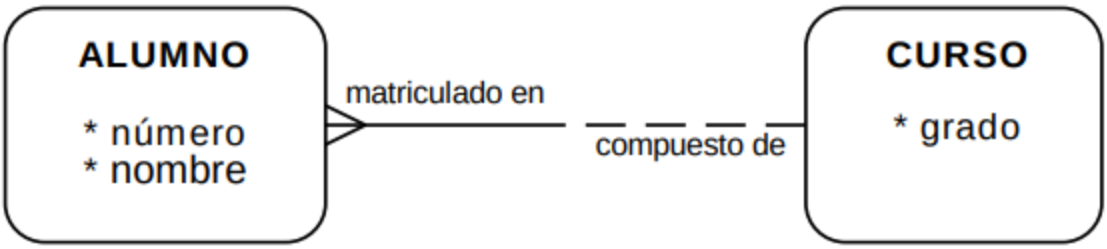


Entity Relationship Model

The entity relationship model is used for the logical design of relational databases

Starting example:

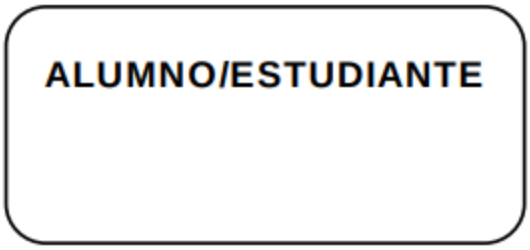


Each box in the diagram represents an **entity** such as “ALUMNO” or “CURSO”, each one of these entities have some **attributes,** such as “número”, “nombre” or “grado” and they also have a **relation** between them, this relation is represented by the line that links them. Each one of these aspects can be modeled with the

entity relationship model, but they have some considerations that will be listed here

Entity:

An entity is an object (real or imaginative) that has certain information that needs to be stored



Every entity must have a unique identifier, this identifier depends on the attributes and relations that the entity has, the attributes that are part of the unique identifier of the entity are represented with a (**#**) prefix, and the relations that are part of the unique identifier must have a bar (**|**) on it's line

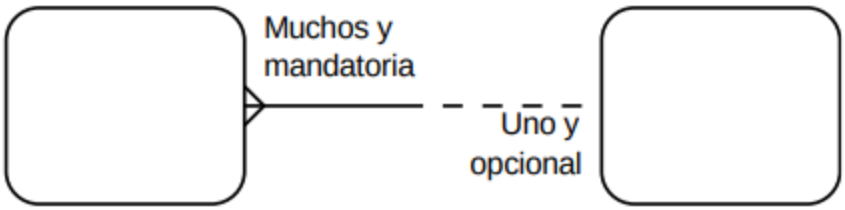
Considerations:

- It has to be represented as a box with rounded corners
- The name of the entity must represent the class of the object, not an instance of it
- The name of the entity must be in uppercase
- The name of the entity must be singular

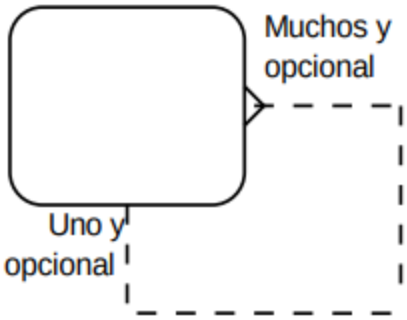
Relation:

A relation is an asociation between two entities

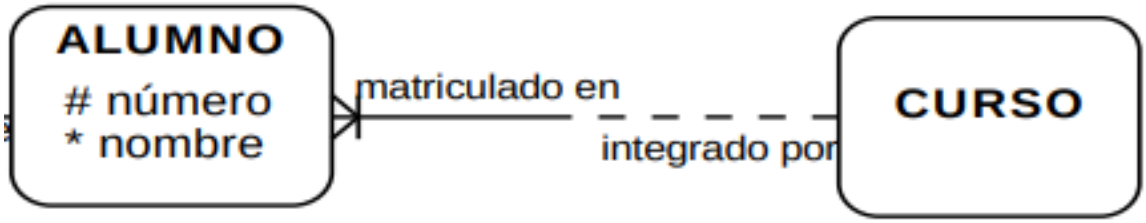
A relation can connect two different entities:



But it can also connect an entity with itself:



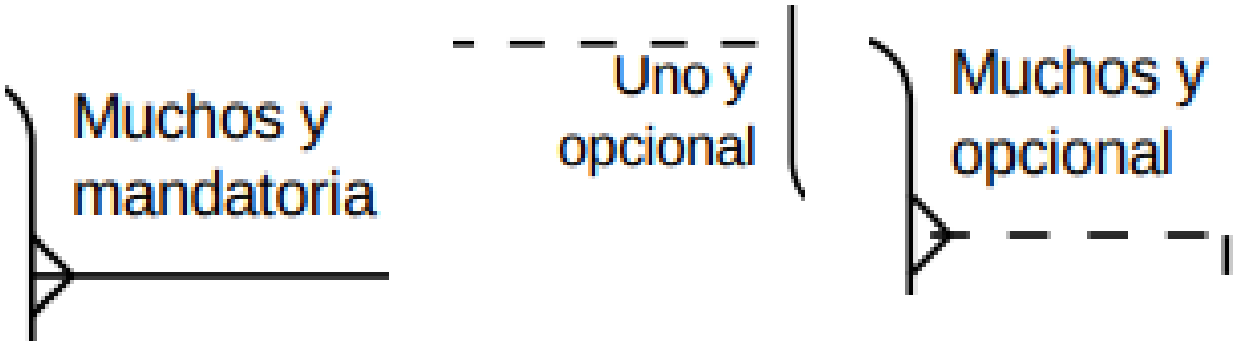
If a relation is part of the unique identifier of an entity it must have a bar (**|**) on it's line like this:

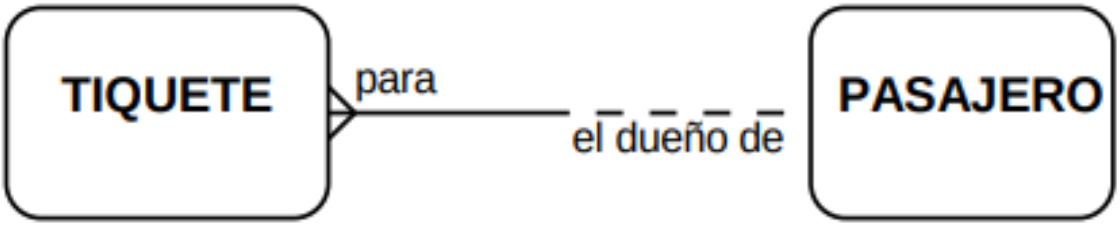


Considerations:

- Every relation has two ends, each of them must have:
  - A legend
  - Cardinality (one or many)
  - Optionality (optional or mandatory)

Examples:





This relation can be read like this:

- Un TIQUETE debe ser para un PASAJERO
- Un PASAJERO puede ser el dueño de muchos TIQUETEs

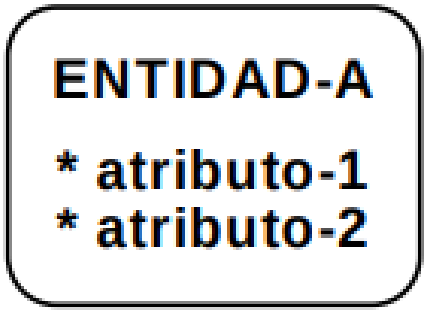
- A tiquet must be for a passenger

- A passenger may be the owner of many tiquets

Attributes:

An attribute is every detail that allows to:

- Identify
- Describe
- Qualify
- Classify
- Show an entity status



The attributes have a prefix that determines their **optionallity** and if they are part of the **unique identifier**:

- Part of the unique identifier (**#**)
- Optional (○)
- Mandatory (*****) or (**.**)

Considerations:

- It may be text, a number or a figure
- It’s name must be in lowercase
- It’s name must be singular
- The attributes must describe only the entity that they’re related with
- The name of the entity must not be present in the name of the attribute
- An attribute must have just one value at a time