



Databases (Key: 1644)

Dependency & Independency

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1 Homework: Investigate what is a weak entity.

Investigate dependency and independency on relationships, identifying dependency & what it a weak entity.

- Investigate dependency and independency relationships
- Identification dependency
- What it a weak entity?

1.1 Investigate dependency and independency relationships

An independent entity is one that does not rely on another for identification. A dependent entity is one that relies on another for identification. An entity occurrence (also called an instance) is an individual occurrence of an entity. An occurrence is analogous to a row in the relational table. *Netaji Subhash Chandra Bose Memorial Utkrisht PG College*

As you develop your data model, you may discover certain entities that depend upon the value of the foreign key attribute for uniqueness. For these entities, the foreign key must be a part of the primary key of the child entity (above the line) to define each entity uniquely.

In relational terms, a child entity that depends on the foreign key attribute for uniqueness is named a dependent entity. In IDEF1X notation, dependent entities are represented as round-cornered boxes.

Entities that do not depend on any other entity in the model for identification are named independent entities. In IE and IDEF1X, independent entities are represented as square-cornered boxes. *Dependent and Independent Entities - Erwin Data Modeler*

Example of an independent entity and a dependent entity

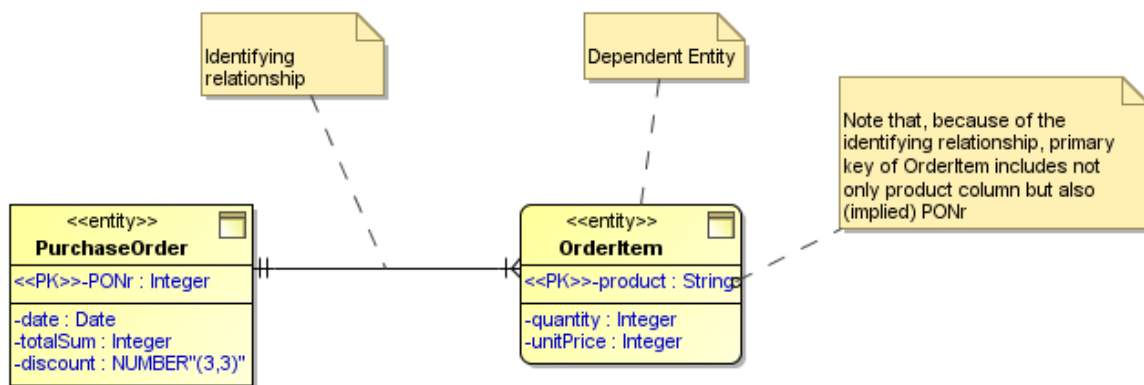


Figure 1: Weak Entities

1.2 Identifying dependency

One-to-many and (very rarely) one-to-one relationships can be declared as “identifying” relationships. An identifying relationship is a “stronger” version of the relationship, indicating that the entity at the multiple end of the relationship cannot exist without the entity on the other end. *Nomagic Documentation*

1.3 What is a weak entity?

A weak entity is an entity that cannot be uniquely identified by its own attributes alone. It relies on a related strong entity, along with a partial key, for its identification. Weak entities typically exist in identifying relationships where the primary key of the strong entity is combined with the weak entity's partial key to create a composite primary key.

Characteristics of a weak entity:

- It does not have a primary key of its own.
- It depends on a strong entity for its identification.
- Its primary key is derived from the combination of its partial key and the primary key of the related strong entity.
- In ER diagrams, weak entities are represented by double rectangles, and the identifying relationship is represented by a double diamond.

Example:

Consider a database for a university where "Department" is a strong entity, and "Course" is a weak entity. A course cannot exist without a department. To uniquely identify a course, the course number (partial key) is combined with the department's identifier (primary key).

Figure 2: Example of a Weak Entity (Course dependent on Department)

Key points:

- Weak entities ensure data integrity when entity existence is inherently dependent on another entity.
- They are crucial in representing real-world scenarios where certain entities cannot logically exist without a parent entity.

2 References

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