

Relational Model

UD03: Relational Model
Databases management

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Introduction



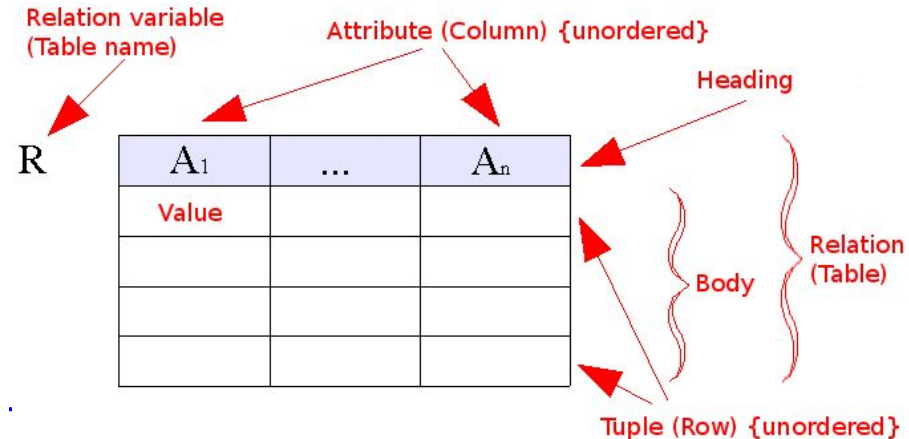
The relational model is an abstract model used to organize data within a database.

In order to control access to a database, write data, run queries, a database management system must have some kind of underlying model that defines how the data within it are organized.



Relational model terminology

- Data is organized in the database using **tables**.
- Each table:
 - Has a **name**.
 - Has multiple columns, identified with a **unique name**, that store a single **attribute** that is common to all elements.
 - Stores different elements in each **row**.
 - Don't allow duplicates.



Example table



- Student table:

NIA	Name	1st Surname	2nd Surname	Address	City	...
1234	Pere	Martí	Roman	Sol, 122	Madrid	
1111	Carla	Ferrer	Sánchez	Balmes, 12	Barcelona	
1212	Mireia	Perelló	Ramos	Serpis, 2	València	

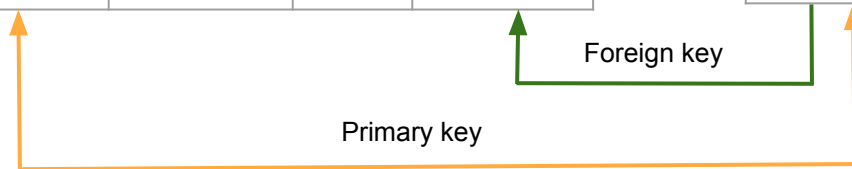


Relational keys

- We need to identify each element within a table. We can do it using different **keys**:
- **Primary key**: Set of attributes that uniquely identify an element.
- **Foreign key**: Reference to an element in another table.

SUBJECT			
mod_id	name	...	course_id
1	Sistemas		10
2	Databases		30

COURSE			
course_id	name	...	level
10	ASIX		superior
30	DAW		superior



Integrity rules: Entity



- All tables must have a primary key.
- The set of primary keys can't have null values nor be repeated.



Integrity rules: References

- Foreign key values must exist in the relation table or be null.
- What does happen when an element is deleted?

POSSIBLE INCONSISTENCIES

- **ON DELETE CASCADE:** Remove the element and all elements referenced by it.
- **ON DELETE RESTRICT:** If the element is referenced in another table, it can't be deleted.
- **ON DELETE SET NULL:** Remove the element and set its references to NULL.