

Review and exercises

1. Define the following terms:

- Tuple
- Attribute
- Record
- Simple attribute
- Row
- Multi-valued attribute
- Composite attribute
- Domain
- Primary key
- Foreign key

2. For each of the following situations:

- Identify the relations (entities).
- Draw an E-R diagram that represents the situation.
 - One person works for one enterprise. One enterprise can employ 1 to n persons. A person is defined by an employee number (unique), a first name, a last name, an address (number, street, city, postal code). An enterprise is defined by a unique id, its assets and its address.
 - One student speaks one or several languages; each language is spoken at a certain level of proficiency. Therefore, each language is spoken by 0 to n students.
 - In a company, there is a hierarchy. Each employee is defined by a unique id, a first name, and a last name. Furthermore, each employee has 0 or 1 direct superior, and can be the direct superior of 0 to n employees.
 - An information system allows for the registration of orders. Each order has a unique order number and a date. The orders are composed of products. Each order has 1 to n products, and each product has a quantity (quantity ordered). Products are defined by a unique product id, a product name and a sale price. Each product was possibly ordered n times, or perhaps never ordered.

3. A recruitment agency wants to create a database to store and manage CVs. To build this database, the following items have been identified:

- Applicants – the persons about which we store the following information:
 - Id
 - First and last names
 - Date of birth
 - Languages spoken
 - Proficiency in those languages
 - Set of skills
 - Current salary
 - Salary sought
- Diplomas
 - Code
 - Title
 - Recipient
 - Date of acquisition

- Potential employers
 - Code
 - Name
 - Address
 - Available positions

Draw an E-R diagram that represents the system described above.