Exercise 1: Management of company relocations

You are requested to design the database for the management of company relocations. The database must contain a list of vans suitable for relocations. The vans are identified by their plate, and they are characterized by their model and, if known, by their volume in cubic meters. Of all the vans, some are authorized to transport special materials, and only for such vans, a list with the certifications of the special materials known to be allowed has to be stored. The database must contain a list of warehouses, identified by a code and characterized by their address and the name of the company to which they belong. You are requested to keep track of all the relocations made. The relocations are identified by the date and by the van with which they are made, and they are characterized by the name of the driver who carried it out. Each relocation is also characterized by the departure warehouse and departure time, and by the arrival warehouse and arrival time.

Exercise 2: Management of van repairs

You are requested to design the database for the management of van repairs. The database must contain a list of vans identified by their plate and characterized by the year of registration. Among the several types of vans, the capacity of the battery is known for those equipped with an electric motor. The database must also include the list of repair shops, identified by a unique code, and characterized by their address. The repair shops can be in partnership with some companies. For each partner company, its VAT number, name, and possibly the list of telephone numbers is known. Note that each company can be in partnership with multiple repair shops and you are requested to keep track only of those companies having a partnership. You are also requested to keep track of the repairs carried out over time on each van. The date, cost and duration in hours are known for each repair. Note that a van can undergo multiple repairs on the same day but in different repair shops. A repair shop can carry out at most one repair for the same van on the same day.

Exercise 3: Management of rental contracts

You are requested to design the database for the management of rental contracts. The database must contain a list of properties available for rent. The properties are identified by a land code, they are characterized by the address, the area in square meters and the list of rooms. Among the different properties available, for the apartments, the floor number is known. The database must contain a list of agencies, identified by a code, and characterized by the address and the list of phone numbers. You are requested to keep track of all the rental contracts of the agencies for each property. Different rental contracts may have been stipulated for the same property, with the same agency or with different agencies. A rental contract is characterized by a start date and an end date, by a monthly price, and can be renewable or non-renewable. A property can only have one rental contract for the same time period. A contract is associated with a single property and a single agency.