Auto Repair Shop

An auto repair shop, that sells and mounts parts and accessories for all kinds of vehicles, wants a new information system to manage their clients, parts, accessories and assembly services:

* There are several employees. Each one of them has an unique identifying number, a name and an address.
* In this shop, assembly services, where parts and accessories are installed in a vehicle, are executed. For each one these services the following data must be stored: In which car the service was executed, how many kms had the car at the time, who was the responsible employee, which parts and accessories were fitted, how many work hours did it take and the admission and finish dates.
* Parts and accessories are only sold together with an assembly service.
* Each part/accessory only fits in some car models. Therefore, it is important to store that information.
* Each part/accessory has a category (radio, tyre, …), a serial number and a price.
* Each car has a license plate, a make, a model, a color and an owner. Each owner has a name, identifying number, address and a phone.
* One person can own more than one car but one car only has one owner.

Bicycle Rental Exercise

A bicycle renting company wants to create an information system that allows it to store the data regarding all their reservations and rentals. The system should follow these requirements:

* It should be possible to store the national id number (NIN), tax identification number (TIN), name and address for every client. The NIN and TIN must be different for every client and all clients should have at least a TIN and a name.
* The database should also contain information about the bicycle models that can be rented- Each model has an unique name, a type (that can only be road, mountain, bmx or hybrid) and the number of gears.
* Each bicycle has a unique identifying number and a model.
* The company has several different stores where bicycles can be picked up and returned. Each one of these stores is identified by an unique name and has an address (both mandatory).
* When a reservation is made, the following data must be known: which client did the reservation, when will he pick up the bike (day), which bike model he wants and where will he pick up the bike (store).
* When a bike is picked up, the actual bike that was picked up must be stored in the database.
* When a bike is returned, the return date should be stored in the database.

Deliveries Exercise

The owner of a small delivery company plans to have an information system that allows him to save data about his customers and deliveries. After some time studying the problem, he reached the following requirements:

* Each customer has a VAT number, a name, a phone number and an address. There are no two clients with the same VAT number.
* When a customer wants to send a package to another customer, he just has to login to the company website, select the customer he wants to send the package to, enter the package’s weight and if the delivery is normal or urgent. He then receives an unique identifier code that he writes on the package.
* The package is then delivered by the customer at the delivery center of his choosing. A delivery center has a unique name and an address.
* Each client has an associated delivery center. This delivery center is chosen by the company and it is normally the one closest to the customer’s house.
* The package is them routed through an internal system until it reaches the delivery center of the recipient.
* The package is then delivered by hand from that delivery center to the recipient by a courier.
* Couriers have a single VAT number, a name and a phone number. Each courier works in a single delivery center.
* A courier is assigned to a packet as soon as the packet is introduced in the system.

Veterinary Clinic Exercise

The owner of a veterinary clinic wants to create a database to store information about all veterinary services performed. After some research he came up with the following requirements:

* For each admitted animal, its name, breed (if any) and owner must be stored. Each animal should be given an unique numeric identifier.
* For each owner, its name, address and phone number should be stored. An unique numeric identifier should also be generated for each one of them.
* An animal might be owner-less. This happens frequently as the clinic often rescues abandoned dogs from the streets in order to treat them and get them new owners.
* It should be possible to store information about a specific breed even if no animals of that breed have been treated at the clinic.
* Each appointement always has a responsible physician. All appointements start at a certain date and time; and are attended by an animal (and of course its owner).
* For each physician, his name, address and phone number should be stored. An unique numeric identifier should also be generated for each one of them.
* In an appointement, several medical conditions might be detected. Each condition has a common name and a scientific name. No two conditions have the same scientific name.
* It should be possible to store information about the most common conditions for each different breed in the database.