

Design - Part B

A furniture store wants to build a database to handle some of its activities.

- The customers of the furniture store are identified by the tax code. Customers are classified as private and company. For private customers, the name, the address, the telephone number (if available) and the mobile phone number (if available) are known. For companies, the VAT number, the name, the address of the legal head office, and a list of telephone numbers are recorded.
 - The furniture store sells different models of furniture. Each model of furniture is identified by an alphanumeric code and it is characterized by the price and the size (height, width, depth). For each model the reference supplier is recorded. Suppliers are identified by the VAT number and they are characterized by the name and the PBX telephone number.
 - The employees of the furniture store are characterized by social security number (SSN), full name, date of birth and date of recruitment. Employees are classified as sellers, artisans of furniture and administrative staff. For sellers, the database stores the work shifts in terms of date and corresponding time slots (i.e., start hour and end hour). Please consider that the same seller can have more work shifts per date.
 - Sale contracts for furnitures are characterized by a unique alphanumeric code, the client, the seller, the date on which the contract has been signed, the scheduled date for delivery, the address of delivery, a brief description, the total sale price and the list of models of furniture purchased with the corresponding amount.
 - The down payments are identified by a code unique within the corresponding contract. Each down payment is characterized by amount and date of payment. For down payment done by check the bank name, the issue date and the check number are recorded.
 - The database keeps track of the scheduling of furniture delivery through vans. Each van is characterized by the plate number, the model and the registration year. Each delivery is characterized by the contract to which it is associated, the date and time of delivery, the used van and the list of artisans of furniture who assembled the furniture. Please note that a van can not perform more than one delivery at a time.
1. *Mandatory* exercise (9 points): Describe the conceptual schema of a database for the above application by means of an ER diagram.
 2. *Mandatory* exercise (4 points): Derive a normalized relational logical schema for the same database.
 3. *Optional* exercise (1 point): Define referential integrity constraints for 3 relations of your choice among those defined in the conceptual schema.