**Database Management**
**2013-2014**
**Homework: Automotive Sales Automation Database**
**(Do the homework with your 2-to-4-members team. Due date is 28-29 December 2013)**

In this homework, you will design and implement automotive sales automation database model.

- Firstly, using the database model given in Question 3.17 of your book, implement THIS database model. At the end of this step, you should have a database with the following relations:
  CAR(Serial_no, Model, Manufacturer, Price)
  OPTION(Serial_no, Option_name, Price)
  SALE(Salesperson_id, Serial_no, Date, Sale_price)
  SALESPERSON(Salesperson_id, Name, Phone)

- In the second step of your homework, you are expected to extend the model you just developed in the first step, in order to meet the following requirements.
  - There shouldn't be any two Models with the same name belonging to two different Manufacturers.
  - OPTION is an accessory independent of the Model. The duplication of Option_name should not be allowed for different types of models if the OPTION is the same.
  - For any Model, the list of OPTIONs should be available before the sales.
  - For the ease of use, SALESPERSONs prepare some PACKAGEs with the predefined OPTION list. A PACKAGE may consists of more than one OPTION with a specific price for that PACKAGE. The price for a PACKAGE may be cheaper than the sum of all the prices of OPTIONs in that package.
  - There should be an information about the CUSTOMER who bought the CAR.

The output of your homework should include the following for each of the database model in the foregoing steps:

- Write an analysis report for the database model you just developed in the second step:
  - What are the main entities?
  - What are the characteristics of each entity?
  - What relationships exist among the entities?
  - What are the constraints related to entities, their characteristics and the relationships among them?

- Write down the appropriate SQL scripts (DDL statements) for creating the database and its relational model. You can select any of the DBMS you wish.

- Populate the database you just created again using SQL script file loaded with sample tuples. (The tables should have enough number of tuples for the SELECT statements to be run accordingly.)

- For each of the database model, write down the following SQL statements:
    - Write sample INSERT, DELETE and UPDATE statements for 3 of the tables you have chosen.
    - Write 10 SELECT statements for the database.
        - 3 of them should use just one table.
        - 4 of them should use minimum 2 tables.
        - 3 of them should use minimum 3 tables.

- For the database model in the second step, write down the following SQL statements:
    - List the names of Models and their Manufacturers with more than 3 OPTIONs.
    - Lit the names of CUSTOMERs and the related SALEPERSONs for each SALE and group them by SALESPERSON name.
    - List the names of SALESPERSONs who sold more than 2 CARs.
    - List the name of the OPTION which is the most repeated one in all of the PACKAGEs.

Good luck.
Murat Osman ÜNALIR