

## CMSC461 Project: Car Dealership

You are to design and develop an RDBMS-based software system to support a car dealership. The system must support both sales and servicing departments of the dealership.

You must track, among other details, the make and model of the cars the dealership sells (example Toyota Corolla). Other details to track must minimally include color, invoice price, suggested retail price, delivery charges, and vehicle type: deluxe, sedan, sports, SUV, minivan, and so on. You must separately track, in addition, each vehicle that is in your inventory, as opposed to those which can be ordered. You must define individual options permitted with each model such as color, anti-lock breaks, GPS system, leather seats, and so on, and the cost of each option for each make and model. You must define pre-determined "value" packages of a combination of options and cost them appropriately (examples: Basic and Deluxe packages). Minimally you must track two makes, three models in each make, seven options, and two option packages for each model, and 20 vehicles in the inventory.

Your system must track salespeople and customers. Your system must permit customers to choose options. You must track customers by minimally name, address, and telephone number, and relate them to the vehicles purchased at your dealership.

Your system must track all details of a sale, including the vehicle sold, its list price, options, actual price, date sold, customer to whom sold, and the salesperson. Your system must track at least five salespeople, 10 customers, and 20 sales.

On the service side, assume that the service department is broken up into at least three teams. The customer may bring in vehicles to be serviced. The customer may or may not prefer a specific team and your system must provide the flexibility. If a customer indicates a preference, your system must track it. Your system must allow for appointments to be made for servicing, and for querying the appointments (example query: "I am customer so-and-so; could you please tell me when my appointment is scheduled?" And the answer could be "On such-and-such a date, for a 10,000 mile service on your new Lexus RX300." Note that the response supplied details beyond just the appointment.)

Your system must generate at least three reports including: (a) Detailed financial reports on how many vehicles of each type are sold in a given period of time (day, week, or month) and at what profit (b) Which salesperson sold the most vehicles and which salesperson generated the highest profits and (c) Which team is most preferred by customers.

### **Logistics:**

You are to form teams with your classmates (only in the section you are enrolled in) consisting of at least three but not more than four people. If you are unable to join a team let Dr. Mundur know immediately. Use the UMBC Oracle system. Accounts will be given to you.

### **Deliverables** include:

- On <March 16>: Detailed system design showing your E-R diagram and the attributes for each entity and reduction of your E-R diagram into tables. We may have impromptu presentations of your design in the class (from volunteer groups).
- On <April 20>: Raw data and queries to support the above operations and reports, tested on the Oracle server. No deliverable necessary.
- On <May 16-18>: Complete demo of your system. You may use any front-end, such as a simple shell script, C program, or Java. GUI based systems will be given extra credit. Be prepared to walk through your source code and also execute a few queries directly on the Oracle server.

Along with the demo, you are also expected to turn over a work log, in which you must record the contributions made by each person on the team.