Leases ‘R’ Us case study

Background

The company Leases ‘R’ Us is looking at taking their business to the next level. The company has seen rapid growth over the last few years and is now planning to transition its business by moving all record keeping and other activities to an electronic platform. The company envisions a possible roll-out of the new platform in different stages. They plan on providing end users with an application that could work on any smart phone, including the traditional web-based interface. The company also plans to have a standalone application only for staff members, which will allow for more comprehensive functionalities that can be handled in-house rather than outsourced.

Operations

The company's primary business is the leasing of cars to customers, which can be individual customers or corporate customers. Unlike the traditional leasing policy of other organisations, the company doesn’t mandate the purchase of the car at the end of the lease period; instead, the lease can be extended further until the customer chooses to terminate the lease. The option to purchase the car during or after the lease period is also still available.

Due to this nature of operations, the company has different lease classifications available, which affects the cost of the lease. Lease classifications are done based on the manufacture year of the car. The newer cars are generally in the highest classification, but other categories allow cars that are a bit older to still be leased at lower rates. Cars that can no longer be leased, for various reasons, are sold by auction to anyone wanting to purchase.

The costing model of the company is also very comprehensive. The price for a lease is affected by many factors such as the manufacture year of the car, the length of the lease term, customer credit rating, and any applicable customer discount (generally given to corporate clients for the number of leases done).

Requirements

Currently, the company keeps track of all information required for the operations of the business, which are outlined below.

* The most obvious is the vehicle information. The list of vehicles includes cars, trucks, minivans, and SUVs. The company plans to also include freight vehicles in the future, but this does not apply at the moment.
* The next most important pieces are the lease information for the various vehicles, the period of the lease, and the associated cost for the lease. The cost doesn’t include any applicable discounts; these are calculated later by the accounts department that processes all payments.
* Each vehicle must have the required insurance when it is leased. This is generally provided by the company, but some corporate clients have insurance policies that cover all vehicles and all personnel using those vehicles.
* The company also requires all vehicles leased to register the driver’s licence for any individual permitted to drive the car. Corporate clients do not need to register a driver.
* The company also requires regular maintenance to be done on the leased cars and keeps track of this information. To make this process easier, the company offers clients the option to do the maintenance using their own provider and furnish the receipts. Alternatively, customers can bring the car in, or arrange to have it picked up, for in-house service and then have the car delivered back to them.
* The company also tracks customer preferences for vehicles. Some frequent customers like limited or special edition cars, and this information is useful to the company when purchasing cars through vendors/manufacturers to add to the existing line-up of available vehicles.
* The company also keeps track of any accidents that involve the leased cars and the repairs made on the cars.
* The company also keeps track of any infringements that are issued on the cars and maintains a record of payments that need to be reimbursed by the customer to the company.
* Lastly, the company keeps track of the sales of cars that have either reached the end of their lease term or are sold by auction. The company has a list of finance vendors to assist customers with purchases. These are associated with the sales should a customer want to use this service. All finance sales need to capture the loan details applicable to the loan. The service is provided free of charge to the customer, however, the lender may issue fees depending on the customer credit rating.

Initially, the company requires a comprehensive backend database to be set up that can handle all the requirements outlined within the case. The database needs to account for all the required data so that the company can generate the required reports and perform analytics to allow upper management to make key decisions about the future direction of the company.

Assignment Task

For the provided Leases 'R' Us case study, you are required to do the following tasks.

Building on your model from Case study: please complete the following:

**Part A**

* Show the normalization from 0NF–3NF for each entity included in your model.
* For each normal form, ensure to include the relevant dependency diagram.
* Show a consolidated list of relations (including attribute synthesis) for the model based on the 3NF normalization for all relations.

**Part B**

* Write up the DDL schema to create all of your entities, attributes, relationships and constraints.
* All key identifiers should have sequences, where applicable.
* For each entity, you must also include a detailed set of DML statements.

To do these tasks, you can use any word processor for the schema generation. Your submission will be a single PDF file. File name should be your **studentID\_Assignment**.