**Application Description**

The database application Automobile Management System, is a comprehensive database application designed to manage the day-to-day operations of a car dealership. The application provides functionality to handle various aspects of the dealership, including maintaining information about cars in the inventory, salespersons, customers, and recorded sales transactions. The database will be implemented using ‘SQL Server’ as the DBMS (Database Management System). It This system helps streamline the processes of inventory management, sales tracking, and customer interactions.

**Key Modules:**

1. Car Inventory Management:

- Purpose: Manage information about the cars available for sale at the dealership.

- Features:

- Add, update, delete, and view car details including Car ID, Year, Make, Model, Type, and Price.

**Columns in CarInventory Table:**

- CarID: Unique identifier for each car.

- Year: Manufacturing year of the car.

- Make: Car manufacturer.

- Model: Car model.

- Type: Type of car (e.g., Sedan, SUV).

- Price: Selling price of the car.

2. **Salesperson Management:**

- Purpose: Manage information about salespersons working at the dealership.

- Features:

- Add, update, delete, and view salesperson details including SalesPerson ID, First Name, Last Name, PhoneNumber, Email, and Hire Date,UserID.

**Columns in SalesPerson Table**:

- SalesPersonID: Unique identifier for each salesperson.

- FirstName: First name of the salesperson.

- LastName: Last name of the salesperson.

- PhoneNumber: Contact phone number.

- Email: Email address.

- HireDate: Date when the salesperson was hired.

- UserID: Foreign key from userlogin table

3. **Customer Management:**

- Purpose: Manage information about customers who purchase cars from the dealership.

- Features:

- Add, update, delete, and view customer details including Customer ID, First Name, Last Name, PhoneNumber, Email, Address, City, State, and Zip.

**Columns in Customer Table:**

- CustomerID: Unique identifier for each customer.

- FirstName: First name of the customer.

- LastName: Last name of the customer.

- Phone: Contact phone number.

- Email: Email address.

- Address: Residential address.

- City: City of residence.

- State: State of residence.

- Zip: Zip code.

4. **Sales Record Management:**

- Purpose: Track sales transactions including the association between customers, cars, and salespersons.

- Features:

- Add, update, delete, and view sales records including SaleID, SalesPersonID, Car ID, Customer ID, and Sales Price.

**Columns in RecordSales Table:**

- SaleID: Unique identifier for each sales transaction.

- SalesPersonID: ID of the salesperson who handled the sale.

- CarID: ID of the car sold.

- CustomerID: ID of the customer who made the purchase.

- SalesPrice: Final sales price of the car.

**5. User Account Management:**

* **Purpose**: Manage login credentials and roles for users accessing the system.
* **Features**:
  + Add, update, delete, and view user accounts including UserID, Username, Password, Email, and Role.

**Columns in UserLogin Table**:

* **UserID**: Unique identifier for each user. It is an auto-incremented integer and serves as the primary key.
* **Username**: The username used for logging into the system. This field is unique and required.
* **Password**: The password associated with the user account. This field is required and should be stored securely.
* **Email**: The email address of the user. This field is unique and required.
* **Role**: The role assigned to the user, which determines their access level or permissions within the system. This field is optional.

**Database Management System (DBMS):**

- The chosen DBMS for this application is Microsoft SQL Server. SQL Server is well-suited for this application due to its robust support for relational databases, strong data integrity features, scalability, and the ability to handle complex queries and stored procedures.

**Unique Aspects:**

- Stored Procedures and Data Manipulation: The application relies heavily on stored procedures to ensure data integrity and consistency across operations like adding, updating, viewing, and deleting records.

- Data Integrity: The design ensures that duplicate entries are identified and removed through SQL scripts, maintaining the uniqueness and accuracy of the data.

- Comprehensive Management: The system integrates various aspects of dealership management, providing a centralized database that facilitates efficient operations.

**Challenges:**

- Data Consistency: Ensuring that updates to inventory, sales, and customer data are accurately reflected across related tables.

- Scalability: Efficiently managing large volumes of data as the dealership grows.

This application provides a scalable and efficient solution for managing the daily operations of MacDonald’s Fine Automobile, ensuring that all records are consistently maintained and easily accessible. This application provides a robust solution for managing dealership operations, enhancing efficiency, and ensuring accurate record-keeping.