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University of Houston - Downtown

# **Automobile Database Management System**

Dylan Britain, Edgar Meza, Tai Quach CS 4318, Database Management Systems Professor Shengli Yuan 12/06/2021

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#### - Abstract -

We will be creating an Automobile Database Management System that will store information on vehicles that are being sold and rented at different dealership locations owned by a single company. The database will also have the ability to enter, update, and delete information pertaining to each dealership's receiving, service center, and parts warehouse. The database will be accessible by the employees of the company, such as the Director, Dealership Managers, Finance Managers, and individual Salespersons.

#### - Mission Statement -

The purpose of the Automobile Database Management System is to maintain the data pertaining to automobiles that are being sold at different dealership branches and the employees working for each dealership branch owned by John Doe Automotive.

# - Mission Objectives -

To maintain (enter, update, and delete) data on dealership branches.

To maintain (enter, update, and delete) data on staff.

To maintain (enter, update, and delete) data on clients.

To maintain (enter, update, and delete) data on vehicles for sale at the dealerships.

To maintain (enter, update, and delete) data on vehicles leased at the dealerships.

To maintain (enter, update, and delete) data on rental vehicles.

To maintain (enter, update, and delete) data on purchased vehicles.

To maintain (enter, update, and delete) data on service centers.

To maintain (enter, update, and delete) data on parts warehouses.

To perform queries on branches.

To perform queries on staff.

To perform queries on clients.

To perform queries on vehicles for sale.

To perform queries on leases.

To perform queries on rentals.

To perform queries on purchased vehicles.

To perform queries on service centers.

To perform queries on parts warehouses.

To report on branches.

To report on staff.

To report on clients.

To report on vehicles for sale.

To report on leases.

To report on rentals.

To report on purchased vehicles.

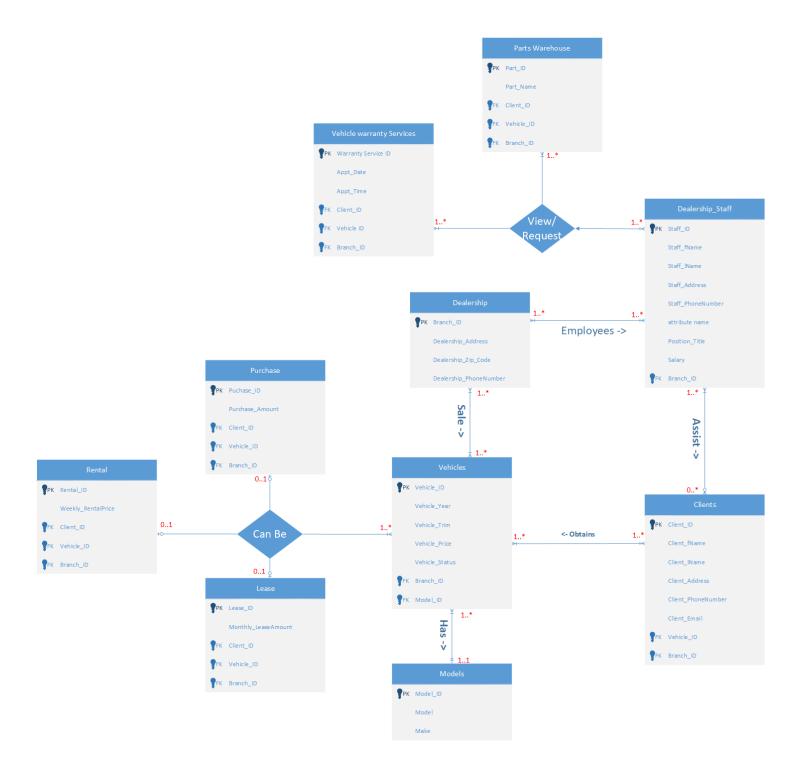
To report on service centers.

To report on parts warehouses.

# - Major User Views -

DATA	ACCESS TYPE	DIRECTOR	DEALERSHIP MANAGER	FINANCE MANAGER	SALESPERSO N
Dealership	Maintain	X	X		
	Query		X		
	Report	X	X		
Staff	Maintain		X		
	Query		X		
	Report	X	X		
Clients	Maintain		X	X	X
	Query		X	X	X
	Report	X	X	X	X
Available	Maintain		X	X	
Vehicles	Query		X	X	X
	Report	X	X	X	X
Vehicle	Maintain		X	X	
Leases	Query		X	X	X
	Report	X	X	X	X
Vehicle	Maintain		X		X
Rentals	Query		X		X
	Report	X	X		X
Vehicles	Maintain		X	X	
Purchased	Query		X		X
	Report	X	X		
Vehicle	Maintain		X		X
Warranty	Query		X		X
Services	Report	X	X		X
Parts	Maintain		X		
Warehouse	Query		X		X
	Report	X	X		X
Vehicle	Maintain		X		
Models	Query		X		X
	Report	X	X		X

# - Entity-Relationship Diagram -



## - Relational Models and BCNF Verification -

## - Dealership Table

#### **Dependencies:**

Branch\_ID -> Dealership\_Address

Branch\_ID -> Dealership\_PhoneNumber

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

#### - Dealership Staff Table

```
CREATE TABLE Dealership Staff(
{\tt Staff\_ID}
                    VARCHAR (6) NOT NULL,
Staff fName
                    VARCHAR (45) NOT NULL,
Staff lName
                    VARCHAR (45) NOT NULL,
Staff Address
                    VARCHAR (45) NOT NULL,
Staff PhoneNumber
                   VARCHAR (10) NOT NULL,
Position Title
                    VARCHAR (45) NOT NULL,
Salary
                             (25) NOT NULL,
                    FLOAT
Branch ID
                    VARCHAR (6) NOT NULL,
PRIMARY KEY (Staff ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership (Branch ID),
);
```

## **Dependencies:**

Staff\_ID -> Staff\_fName

Staff\_ID -> lName

Staff\_ID -> Staff\_Address

Staff\_ID -> Staff\_PhoneNumber

Staff\_ID -> Position\_Title

Staff\_ID -> Salary

Staff\_ID -> Branch\_ID

#### **Normalization Justifications:**

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3NF - Is 2NF and does not contain any transitive dependencies.

#### - Vehicles Table

```
CREATE TABLE Vehicles (
               VARCHAR (8) NOT NULL,
Vehicle ID
Model ID
              VARCHAR (6) NOT NULL,
Vehicle Year
               VARCHAR (4)
                            NOT NULL,
Vehicle Trim
               VARCHAR (45) NOT NULL,
Vehicle Price
               FLOAT
                       (25) NOT NULL,
Vehicle Status VARCHAR (25) NOT NULL,
                            NOT NULL,
Branch ID
               VARCHAR (6)
PRIMARY KEY (Vehicle ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership(Branch_ID),
FOREIGN KEY (Model ID) REFERENCES Models (Model ID)
);
```

## **Dependencies:**

```
Vehicle_ID -> Model_ID

Vehicle_ID -> Vehicle_Year

Vehicle_ID -> Vehicle_Trim

Vehicle_ID -> Vehicle_Price

Vehicle_ID -> Vehicle_Status

Vehicle_ID -> Branch_ID
```

## **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

# - Lease Table

```
CREATE TABLE Lease (
                      VARCHAR (6) NOT NULL,
Lease ID
Monthly LeaseAmount
                      FLOAT
                               (25) NOT NULL,
Client ID
                      VARCHAR (6) NOT NULL,
Vehicle ID
                      VARCHAR (8) NOT NULL,
                      VARCHAR (6) NOT NULL,
Branch ID
PRIMARY KEY (Lease ID),
FOREIGN KEY (Client ID) REFERENCES Clients (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership(Branch_ID),
);
```

## **Dependencies:**

```
Lease_ID -> Monthly_LeaseAmount
Lease_ID -> Client_ID
Lease_ID -> Vehicle_ID
Lease_ID -> Branch_ID
```

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

#### - Rental Table

```
CREATE TABLE Rental (
Rental ID
                      VARCHAR (6) NOT NULL,
Weekly RentalPrice
                      FLOAT
                               (25) NOT NULL,
Client ID
                      VARCHAR (6) NOT NULL,
Vehicle ID
                      VARCHAR (8) NOT NULL,
Branch ID
                      VARCHAR (6) NOT NULL,
PRIMARY KEY (Rental ID),
FOREIGN KEY (Client ID) REFERENCES Clients (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership (Branch ID),
);
```

#### **Dependencies:**

Rental\_ID -> Weekly\_RentalPrice

Rental\_ID -> Client\_ID

Rental\_ID -> Vehicle\_ID

Rental\_ID -> Branch\_ID

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

# - Parts Warehouse Table

```
CREATE TABLE Parts Warehouse (
                   VARCHAR (6) NOT NULL,
Part ID
Part Name
                   VARCHAR (45) NOT NULL,
Client ID
                   VARCHAR (6),
Vehicle ID
                   VARCHAR (8),
                    VARCHAR (6) NOT NULL,
Branch ID
PRIMARY KEY (Part ID),
FOREIGN KEY (Client ID) REFERENCES Clients (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle_ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership (Branch_ID),
);
```

#### **Dependencies:**

Part\_ID -> Part\_Name
Part\_ID -> Client\_ID
Part\_ID -> Vehicle\_ID
Part\_ID -> Branch\_ID

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

# - Purchase Table

```
CREATE TABLE Purchase (
Purchase ID
                   VARCHAR (6) NOT NULL,
Purchased Amount FLOAT
                             (25) NOT NULL,
Client ID
                    VARCHAR (6) NOT NULL,
                    VARCHAR (8) NOT NULL,
Vehicle ID
                    VARCHAR (6) NOT NULL,
Branch ID
PRIMARY KEY (Purchase ID),
FOREIGN KEY (Client ID) REFERENCES Clients (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle_ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership(Branch_ID),
);
```

#### **Dependencies:**

```
Purchase_ID -> Purchase_Amount
Purchase _ID -> Client_ID
Purchase _ID -> Vehicle_ID
Purchase _ID -> Branch_ID
```

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

## - Vehicle Warranty Services Table

```
CREATE TABLE Vehicle WarrantyServices (
WarrantyService ID
                      VARCHAR (6) NOT NULL,
Appt Date
                                NOT NULL,
                       DATE
Appt Time
                       TIME
                                NOT NULL,
Client ID
                      VARCHAR (6) NOT NULL,
Vehicle ID
                      VARCHAR (8) NOT NULL,
Branch ID
                      VARCHAR (6) NOT NULL,
PRIMARY KEY (WarrantyService ID),
FOREIGN KEY (Client ID) REFERENCES Clients (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership (Branch ID),
);
```

## **Dependencies:**

WarrantyService\_ID -> Appt\_Date
WarrantyService \_ID -> Appt\_Time
WarrantyService \_ID -> Client\_ID
WarrantyService \_ID -> Vehicle\_ID
WarrantyService \_ID -> Branch\_ID

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

#### - Clients Table

```
CREATE TABLE Clients (
Client ID
                    VARCHAR (6) NOT NULL,
Client fName
                   VARCHAR (45) NOT NULL,
Client lName
                   VARCHAR (45) NOT NULL,
Client Address
                   VARCHAR (45) NOT NULL,
Client PhoneNumber VARCHAR (10) NOT NULL,
Client Email
                   VARCHAR (50) NOT NULL,
Vehicle ID
                    VARCHAR (8),
Branch ID
                    VARCHAR (6) NOT NULL,
PRIMARY KEY (Client ID),
FOREIGN KEY (Vehicle ID) REFERENCES Vehicles (Vehicle ID),
FOREIGN KEY (Branch ID) REFERENCES Dealership (Branch ID),
);
```

# **Dependencies:**

Client\_ID-> Client\_fName

Client\_ID-> Client\_lName

Client\_ID-> Client\_Address

Client\_ID-> Client\_PhoneNumber

Client\_ID-> Client\_Email

Client\_ID-> Vehicle\_ID

Client\_ID-> Branch\_ID

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

#### - Models Table

```
CREATE TABLE Models (

Model_ID VARCHAR (6) NOT NULL,

Model VARCHAR (24) NOT NULL,

Make VARCHAR (24) NOT NULL

PRIMARY KEY (Model_ID)

);
```

# **Dependencies:**

Model\_ID -> Model

Model\_ID -> Make

#### **Normalization Justifications:**

1NF – There is only one data entry for each cell. All values in each column have the same domain and unique names.

2NF – Is 1NF and there are no partial dependencies.

3NF - Is 2NF and does not contain any transitive dependencies.

## - Use Cases -

# 1. Use case name: Insert Dealership's Information within Dealership

## Actor/User: Dealership Manager, Director

Steps:

- 1. User clicks on "Dealership" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button:
- 4. User is prompted to enter the **Branch\_ID** for the new branch.
- 5. Dealership information fields (**Dealership\_Address**, **Dealership\_PhoneNumber**, **Branch\_ID**) loads up. The user **inserts** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

#### Director, Dealership Manager:

## 2. Use case name: Update Dealership's Information within Dealership

#### Actor/User: Dealership Manager, Director

Steps:

- 1. User clicks on "**Dealership**" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Branch\_ID**;
- 5. Dealership information fields (**Dealership\_Address**, **Dealership\_PhoneNumber**, **Branch\_ID**) loads up. The user **update** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

## Director, Dealership Manager:

```
UPDATE Dealership

SET Dealership_PhoneNumber = '8325740233'

WHERE Branch ID = 'br0001';
```

## 3. Use case name: Delete Dealership's Information within Dealership

#### Actor/User: Dealership Manager, Director

Steps:

- 1. User clicks on "**Dealership**" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Branch\_ID**;
- 5. All information is displayed on screen (**Dealership\_Address**, **Dealership\_PhoneNumber**, **Branch\_ID**).
- 6. Prompt user to confirm the information to delete
- 7. User confirms delete by clicking on the "**Delete**" button.

#### Director, Dealership Manager:

```
DELETE FROM Dealership
WHERE Branch ID = 'br0005';
```

## 4. Use case name: Querying Dealership's Information within Dealership

# Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Dealership" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter dealership information (**Dealership\_Address**, **Dealership\_PhoneNumber**, **Branch\_ID**);
- 4. User clicks on the "**Request**" button;
- 5. All information is displayed on the screen

# Dealership Manager:

SELECT \*

FROM Dealership

WHERE Dealership Address = '1234 Valhalla';

#### 5. Use case name: Reporting Dealership's Information within Dealership

#### Actor/User: Dealership Manager

Steps:

- 1. User clicks on "**Dealership**" button;
- 2. User clicks on "**Report Data**" button;
- 3. Prompt User to enter the dealership information (**Dealership\_Address**, **Dealership PhoneNumber**, **Branch ID**);
- 4. User clicks on "Run Report";
- 5. Report containing selected local dealerships' information is displayed on screen;
- 6. User may click on "Print Report" if needed

#### Dealership Manager:

```
SELECT DISTINCT Dealership_Address, Dealership_PhoneNumber,

Dealership.Branch_ID, Parts_Warehouse.Part_Name

FROM Dealership

INNER JOIN Parts_Warehouse

ON Dealership.Branch ID = Parts Warehouse.Branch ID
```

ORDER BY Branch ID;

## 6. Use case name: Insert Staff's Information within Dealership

# Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Dealership\_Staff" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button:
- 4. User is prompted to enter the **Staff\_ID** for the new staff;
- 5. Staff information fields (Staff\_fName, Staff\_lName, Staff\_Address, Staff\_PhoneNumber, Position\_Title, Salary, Branch\_ID) loads up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

# Dealership Manager:

# 7. Use case name: Update Staff's Information within Dealership

# Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Dealership\_Staff" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Staff\_ID**;
- Staff information fields (Staff\_fName, Staff\_lName, Staff\_Address, Staff\_PhoneNumber, Position\_Title, Salary, Branch\_ID) loads up. The user updates fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

# Dealership Manager:

```
UPDATE Dealership_Staff

SET Staff_lName = 'Oda', Staff_fName = 'John'
WHERE Branch ID = 'br0001';
```

# 8. Use case name: Delete Staff's Information within Dealership

#### Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Dealership\_Staff" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Delete" button;
- 4. User is prompted to enter the **Staff\_ID**;
- 5. All information is displayed on screen (Staff\_fName, Staff\_lName, Staff\_Address, Staff\_PhoneNumber, Position\_Title, Salary, Branch\_ID).
- 6. User confirms delete by clicking on the "Delete" button.

#### Dealership Manager:

```
DELETE FROM Dealership_Staff

WHERE Staff_lName = 'Oda'

AND Staff_fName = 'John';
```

## 9. Use case name: Querying Staff's information within Dealership

# Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Dealership\_Staff" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter staff information (Staff\_ID, Staff\_fName, Staff\_lName, Staff\_Address, Staff\_PhoneNumber, Position\_Title, Salary, Branch\_ID);
- 4. User clicks on the "**Request**" button;
- 5. All information is displayed on the screen

# Dealership Manager:

SELECT Staff\_PhoneNumber

FROM Dealership\_Staff

WHERE Position\_Title = 'Finance Manager'

AND Branch ID = 'br0007';

#### 10. Use case name: Reporting on Staff's information within Dealership

## Actor/User: Dealership Manager

Steps:

- 1. Users click on "**Dealership\_Staff**" button;
- 2. User clicks on "**Report Data**" button;
- 3. Prompt user to enter staff information (Staff\_ID, Staff\_fName, Staff\_lName, Staff\_Address, Staff\_PhoneNumber, Position\_Title, Salary, Branch\_ID);
- 4. User clicks on "Run Report";
- 5. Report containing staff information within selected branches is displayed on screen;
- 6. User may click on "Print Report" if needed.

#### Dealership Manager:

```
SELECT Staff_fName, Staff_lName, Dealership_Staff.Branch_ID

FROM Dealership_Staff
INNER JOIN Dealership
ON Dealership_Staff.Branch_ID = Dealership.Branch_ID

ORDER BY Branch_ID;
```

## 11. Use case name: Insert Client's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager, Salesperson

#### Steps:

- 1. User clicks on "Clients" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Insert" button;
- 4. User is prompted to enter the **Client\_ID** for the new client;
- Client information fields (Client\_fName, Client\_lName, Client\_Address, Client\_PhoneNumber, Client\_Email, Vehicle\_ID, Branch\_ID) loads up. The user inserts fields as needed:
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

# Dealership Manager, Finance Manager, Salesperson:

## 12. Use case name: Update Client's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Clients" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Client\_ID**;
- Client information fields ( Client\_fName, Client\_lName, Client\_Address, Client\_PhoneNumber, Client\_Email, Vehicle\_ID, Branch\_ID) loads up. The user updates fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

# Dealership Manager, Finance Manager, Salesperson:

#### 13. Use case name: Delete Client's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Clients" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Client\_ID**;
- 5. All information is displayed on screen (Client\_ID, Client\_fName, Client\_lName, Client\_Address, Client\_PhoneNumber, Client\_Email, Vehicle\_ID, Branch\_ID).
- 6. Prompt user to confirm the information to delete
- 7. User confirms delete by clicking on the "**Delete**" button.

## Dealership Manager, Finance Manager, Salesperson:

```
DELETE FROM Clients

WHERE Client_lName = 'Turner'

AND Client ID = 'Cmt123';
```

## 14. Use case name: Querying Clients within Dealership

# Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Clients" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter clients' information (Client\_ID, Client\_fName, Client\_lName, Client\_Address, Client\_PhoneNumber, Client\_Email, Vehicle\_ID, Branch\_ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen

# Dealership Manager, Finance Manager, Salesperson:

SELECT DISTINCT COUNT (\*) AS Total Clients

FROM Dealership

WHERE Branch='br0008'

## 15. Use case name: Reporting on Clients within Dealership

## Actor/User: Dealership Manager, Financial Manager, Salesperson

Steps:

- 1. User click on "Clients" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter client information (Client\_ID, Client\_fName, Client\_lName, Client\_Address, Client\_PhoneNumber, Client\_Email, Vehicle\_ID, Branch\_ID);
- 4. User clicks on "Run Report";
- 5. Report containing all clients' information within selected local dealerships are displayed on screen.
- 6. User may click on "**Print Report**" if needed.

# Dealership Manager, Finance Manager, Salesperson:

SELECT DISTINCT Client ID, Client fName,

Client PhoneNumber, Client.Branch ID

FROM Client

INNER JOIN Dealership

ON Client.Branch ID = Dealership.Branch ID

ORDER BY Branch ID;

## 16. Use case name: Insert Vehicle for Sale's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Vehicles for Sale" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **Vehicle\_ID** for the new vehicle;
- 5. Vehicle for Sale's information fields (Vehicle\_Year, Model\_ID, Vehicle\_Trim, Vehicle\_Price, Vehicle\_Status, Branch\_ID) load up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

#### Dealership Manager, Finance Manager:

#### 17. Use case name: Update Vehicle for Sale's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Vehicles for Sale" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Vehicle\_ID**;
- 5. Vehicle for Sale's information fields (Vehicle\_Year, Model\_ID, Vehicle\_Trim, Vehicle\_Price, Vehicle\_Status, Branch\_ID) load up. The user updates fields as needed:
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

# Dealership Manager, Finance Manager:

```
UPDATE     Vehicles_For_Sale

SET          Vehicle_Price = '35421.00', Branch_ID = 'br0004'

WHERE          Vehicle ID = 'fofu7613';
```

#### 18. Use case name: Delete Vehicle for Sale's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Vehicles for Sale" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Vehicle\_ID**;
- 5. All information is displayed on screen (Vehicle\_ID, Vehicle\_Year, Model\_ID, Vehicle Trim, Vehicle Price, Vehicle Status, Branch ID).
- 6. User confirms delete by clicking on the "**Delete**" button.

#### Dealership Manager, Finance Manager:

```
DELETE FROM Vehicles_For_Sale
WHERE Vehicle ID = 'caes2865';
```

## 19. Use case name: Querying Vehicles for Sale within Dealership

# Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Vehicles for Sale" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter vehicles information (Vehicle\_ID, Vehicle\_Year, Model\_ID, Vehicle\_Trim, Vehicle\_Price, Vehicle\_Status, Branch\_ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen

# Dealership Manager, Finance Manager, Salesperson:

```
SELECT Model_ID, Vehicle_Price

FROM Vehicles_For_Sale

WHERE Vehicle_Price >= '29800.00';

ORDER BY Vehicle_Price DESC;
```

#### 20. Use case name: Reporting on Available Vehicles within Dealership

#### Actor/User: Dealership Manager, Finance Manager, Salesperson

#### Steps:

- 1. User clicks on "Available Vehicles" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter vehicle information (Vehicle ID, Vehicle\_Year, Model\_ID, Vehicle Trim, Vehicle Price, Vehicle Status, Branch ID);
- 4. User clicks on "Run Report";
- 5. Report containing all information for Vehicles for Sale Within the Local Dealership is displayed on screen.
- 6. User may click on "Print Report" if needed.

# Dealership Manager, Finance Manager, Salesperson:

SELECT DISTINCT Vehicle ID, Vehicle Price,

Vehicle Status, Vehicle.Branch ID

FROM Vehicles

INNER JOIN Dealership

ON Vehicles.Branch ID = Dealership.Branch ID

ORDER BY Branch ID;

# 21. Use case name: Insert Vehicle for Lease's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Vehicles for Lease" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **Lease\_ID** for the new vehicle for lease;
- 5. Vehicle for Lease's information fields (Monthly\_LeaseAmount, Client\_ID, Vehicle\_ID, Branch\_ID) loads up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

#### Dealership Manager, Finance Manager:

#### 22. Use case name: Update Vehicle for Lease's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Vehicle for Lease" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Lease\_ID**;
- 5. Vehicle for Lease's information fields (Monthly\_LeaseAmount, Client\_ID, Vehicle ID, Branch ID) loads up. The user updates fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

## Dealership Manager, Finance Manager:

```
UPDATE Lease
SET Monthly_LeaseAmount = '725.00'
WHERE Lease_ID = 'L17613';
```

## 23. Use case name: Delete Vehicle for Lease's Information within Dealership

### Actor/User: Dealership Manager, Finance Manager

#### Steps:

- 1. User clicks on "Clients" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Lease\_ID**;
- 5. All information is displayed on screen (Monthly\_LeaseAmount, Client\_ID, Vehicle\_ID, Branch\_ID).
- 6. Prompt user to confirm the information to delete
- 7. User confirms delete by clicking on the "**Delete**" button.

## Dealership Manager, Finance Manager:

```
DELETE FROM Leases

WHERE Lease ID = 'L15637'
```

#### 24. Use case name: Querying Vehicle Leases within Dealership

#### Actor/User: Dealership Manager, Finance Manager, Salesperson

#### Steps:

- 1. User clicks on "Vehicles" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter the Vehicle for Lease's information (Lease\_ID, Monthly LeaseAmount, Client ID, Vehicle ID, Branch ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

## Dealership Manager, Finance Manager, Salesperson

```
SELECT Lease_ID, Monthly_LeaseAmount,

Client_ID, Vehicle_ID, Branch_ID

FROM Leases

WHERE Branch_ID = 'br0008'

ORDER BY Client ID;
```

#### 25. Use case name: Reporting on Leases within Dealership

## Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Leases" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter the Vehicle for Lease's information (Lease\_ID, Monthly\_LeaseAmount, Client\_ID, Vehicle\_ID, Branch\_ID);
- 4. User clicks on "Run Report";
- 5. Report containing all lease information for Vehicles for Lease within the selected Branch are displayed on screen.
- 6. User may click on "Print Report" if needed.

#### Dealership Manager, Finance Manager, Salesperson:

SELECT DISTINCT Lease ID, Monthly LeaseAmount, Vehicle ID,

Lease.Branch ID

FROM Lease

INNER JOIN Dealership

ON Lease.Branch ID = Dealership.Branch ID

ORDER BY Lease ID;

#### 26. Use case name: Insert Rental Vehicle's Information within Dealership

## Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Rentals" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button:
- 4. User is prompted to enter the **Rental\_ID** for the new vehicle for lease;
- 5. Rental's information fields (Rental\_ID, Weekly\_RentalPrice, Client\_ID, Vehicle\_ID, Branch\_ID) loads up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

## Dealership Manager, Finance Manager:

```
INSERT INTO Rental

VALUES ('r78647', '325.84', 'crt879, 'totu9857', 'br0005');
```

# 27. Use case name: Update Rental Vehicle's Information within Dealership

Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Rentals" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Rental\_ID**;
- 5. Rental's information fields (Rental\_ID, Weekly\_RentalPrice, Client\_ID, Vehicle\_ID, Branch\_ID) load up. The user updates fields as needed;
- 6. Prompt user to confirm the information:
- 7. User confirms by clicking on the "**Confirm**" button.

# Dealership Manager, Finance Manager:

# 28. Use case name: Delete Rental Vehicle's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Rentals" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Delete" button;
- 4. User is prompted to enter the **Rental\_ID**;
- 5. All information is displayed on screen (Rental\_ID, Weekly\_RentalPrice, Client\_ID, Vehicle ID, Branch ID).
- 6. Prompt user to confirm the information to delete
- 7. User confirms delete by clicking on the "**Delete**" button.

## Dealership Manager, Finance Manager:

```
DELETE FROM Rentals

WHERE Vehicle ID = 'kisp2059'
```

## 29. Use case name: Querying Rental Vehicles within Dealership

Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Rentals" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter Rental information (Rental\_ID, Weekly\_RentalPrice, Client\_ID, Vehicle\_ID, Branch\_ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

## Dealership Manager, Finance Manager, Salesperson:

```
SELECT DISTINCT COUNT (*) AS Total_Rentals

FROM Rentals

WHERE Branch ID='br0007'
```

#### 30. Use case name: Reporting on Rental Vehicles within Dealership

#### Actor/User: Dealership Manager, Finance Manager, Salesperson

Steps:

- 1. User clicks on "Rentals" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter Rental information (**Rental\_ID**, **Weekly\_RentalPrice**, **Client\_ID**, **Vehicle\_ID**, **Branch\_ID**);
- 4. User clicks on "Run Report";
- 5. Report containing all information for Rentals is displayed on screen.
- 6. User may click on "Print Report" if needed.

# Dealership Manager, Finance Manager, Salesperson:

```
SELECT DISTINCT Rental_ID, Weekly_RentalPrice, Rental.Branch_ID
FROM Rental
INNER JOIN Dealership
ON Rental.Branch_ID = Dealership.Branch_ID
ORDER BY Weekly RentalPrice;
```

#### 31. Use case name: Insert Purchased Vehicle's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Purchased Vehicles" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **Purchase\_ID** for the new purchased vehicle;
- 5. Purchased Vehicle's information fields (**Client\_ID**, **Vehicle\_ID**, **Branch\_ID**) loads up. The user **inserts** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

#### Dealership Manager, Finance Manager:

```
INSERT INTO Purchase

VALUES ('ckr1423', 'nial1590', 'br0002');
```

#### 32. Use case name: Update Purchased Vehicle's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Purchased Vehicles" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Purchase\_ID**;
- 5. Purchased Vehicle's information fields (**Client\_ID**, **Vehicle\_ID**, **Branch\_ID**) load up. The user **updates** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

#### Dealership Manager, Finance Manager:

```
UPDATE    Purchase

SET         Client_ID = 'cjh1964'

WHERE         Vehicle_ID = 'kifo2059' AND Branch_ID = 'br0002';
```

#### 33. Use case name: Delete Purchased Vehicle's Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Purchased Vehicles" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Purchase\_ID**;
- 5. All information is displayed on screen (**Purchase\_ID**, **Client\_ID**, **Vehicle\_ID**, **Branch ID**).
- 6. Prompt user to confirm the information to delete;
- 7. User confirms delete by clicking on the "**Delete**" button.

#### Dealership Manager, Finance Manager:

```
DELETE FROM Purchase

WHERE Vehicle ID = 'kifo2059'
```

# 34. Use case name: Querying Purchased Vehicles within Dealership

## Actor/User: Dealership Manager, Salesperson

Steps:

- 1. User clicks on "Purchased" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter Purchased information (**Purchase\_ID**, **Client\_ID**, **Vehicle\_ID**, **Branch\_ID**);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

# Dealership Manager, Salesperson:

```
SELECT *
FROM Purchase
WHERE Vehicle_ID = 'chsi2301';
```

#### 35. Use case name: Reporting on Purchased Vehicles within Dealership

## Actor/User: Dealership Manager

Steps:

- 1. User clicks on "Purchased" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter Purchased information (**Purchase\_ID**, **Client\_ID**, **Vehicle\_ID**, **Branch\_ID**);
- 4. User clicks on "Run Report";
- 5. Report containing all information for Rentals is displayed on screen.
- 6. User may click on "Print Report" if needed.

#### Dealership Manager:

SELECT DISTINCT Purchase ID, Purchased Amount, Client ID,

Purchase.Branch ID

FROM Purchase

INNER JOIN Dealership

ON Purchase.Branch ID = Dealership.Branch ID

ORDER BY Client\_ID;

#### 36. Use case name: Insert Vehicle Warranty Service within Dealership

#### Actor/User: Dealership Manager, Salesman

Steps:

- 1. User clicks on "Service Centers" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **WarrantyService\_ID** for the new service center;
- 5. Warranty Service's information fields (Appt\_Date, Appt\_Time, Client\_ID, Vehicle\_ID, Branch\_ID) loads up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

## Dealership Manager, Salesman:

#### 37. Use case name: Update Vehicle Warranty Service within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Service Centers" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **WarrantyService ID**;
- 5. Warranty Service's information fields (**Appt\_Date**, **Appt\_Time**, **Client\_ID**, **Vehicle ID**, **Branch ID**) load up. The user **updates** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

#### Dealership Manager, Finance Manager:

#### 38. Use case name: Delete Vehicle\_WarrantyServices Information within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Service Centers" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **WarrantyService\_ID**;
- 5. All information is displayed on screen (WarrantyService\_ID, Appt\_Date, Appt\_Time, Client\_ID, Vehicle\_ID, Branch\_ID).
- 6. Prompt user to confirm the information to delete;
- 7. User confirms delete by clicking on the "**Delete**" button.

#### Dealership Manager, Finance Manager:

#### 39. Use case name: Querying Vehicle Warranty Services within Dealership

Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Service Centers" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter Service Center information (WarrantyService\_ID, Appt\_Date, Appt\_Time, Client\_ID, Vehicle\_ID, Branch\_ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

#### Branch Manager, Salesman:

SELECT DISTINCT COUNT (\*) AS Total\_WarrantyServices

FROM WarrantyServices

WHERE Branch ID='br0005'

#### 40. Use case name: Reporting on Vehicle Warranty Services within Dealership

## Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Service Centers" button;
- 2. User clicks on "Report Data" button;
- 3. Prompt user to enter Service Center information (WarrantyService\_ID, Appt\_Date, Appt\_Time, Client\_ID, Vehicle\_ID, Branch\_ID);
- 4. User clicks on "Run Report";
- 5. Report containing all information for the local dealership's Service Center is displayed on screen.
- 6. User may click on "Print Report" if needed.

#### Branch Manager, Salesman:

ORDER BY Client ID;

#### 41. Use case name: Insert Parts Warehouse within Dealership

#### Actor/User: Dealership Manager, Salesman

Steps:

- 1. User clicks on "Parts Warehouses" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **Part\_ID** for the new part;
- 5. Parts Warehouse's information fields (Part\_ID, Part\_Name, Vehicle\_ID, Client\_ID, Branch\_ID) load up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

#### Dealership Manager, Salesman:

## 42. Use case name: Update Parts Warehouse within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Parts Warehouses" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Part\_ID**;
- 5. Parts Warehouse's information fields (**Part\_Name, Vehicle\_ID, Client\_ID, Branch\_ID**) load up. The user **updates** fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

#### Dealership Manager, Finance Manager:

```
UPDATE     Parts_Warehouse

SET          Branch_ID = 'br0006'

WHERE     Part ID BETWEEN 'pt0100' AND 'pt0199'
```

#### 43. Use case name: Delete Parts Warehouse within Dealership

#### Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Parts Warehouses" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Part\_ID**;
- 5. All information is displayed on screen (Part\_ID, Part\_Name, Vehicle\_ID, Client\_ID, Branch\_ID).
- 6. Prompt user to confirm the information to delete;
- 7. User confirms delete by clicking on the "**Delete**" button.

## Dealership Manager, Finance Manager:

```
DELETE FROM Parts_Warehouse

WHERE Part_ID BETWEEN 'pt0200' AND 'pt0249'
```

## 44. Use case name: Querying Parts Warehouse within Dealership

Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Parts Warehouse" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter Parts Warehouse information (Part ID, Part Name, Client ID, Vehicle ID, Branch ID);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

## Branch Manager, Salesman:

```
SELECT *
FROM Parts Warehouse
WHERE Part ID = 'pt0694';
```

#### 45. Use case name: Reporting on Parts Warehouse within Dealership

#### Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Parts Warehouse" button;
- 2. User clicks on "Report" button;
- 3. Prompt user to enter Part information (Part ID, Part Name, Client ID, Vehicle ID, Branch ID);
- 4. User clicks on "Run Report";
- 5. Report containing all information for the Parts Warehouse at Local Dealership is displayed on screen.
- 6. User may click on "Print Report" if needed.

## Branch Manager, Salesman:

```
SELECT DISTINCT Part_ID, Part_Name, Vehicle_ID,
```

Parts Warehouse.Branch ID

FROM Parts Warehouse

INNER JOIN Dealership

ON Parts Warehouse.Branch ID = Dealership.Branch ID

ORDER BY Part\_Name;

#### 46. Use case name: Insert Models within Dealership

## Actor/User: Dealership Manager, Salesman

Steps:

- 1. User clicks on "Models" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Insert**" button;
- 4. User is prompted to enter the **Model\_ID** for the new Model;
- 5. Model's information fields (Model, Make) load up. The user inserts fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "**Confirm**" button.

## Dealership Manager, Salesman:

```
INSERT INTO Models
VALUES ('chesil', 'Silverado', 'Chevrolet');
```

## 47. Use case name: Update Models within Dealership

Actor/User: Dealership Manager, Finance Manager

Steps:

- 1. User clicks on "Models" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "Update" button
- 4. User is prompted to enter the **Model\_ID**;
- 5. Model's information fields (Model, Make) load up. The user updates fields as needed;
- 6. Prompt user to confirm the information;
- 7. User confirms by clicking on the "Confirm" button.

#### Dealership Manager, Finance Manager:

```
UPDATE Models

SET Model = 'Trax'
WHERE Model = 'Traz'
```

#### 48. Use case name: Delete Models within Dealership

#### Actor/User: Dealership Manager, Finance Manager

#### Steps:

- 1. User clicks on "Models" button;
- 2. User clicks on "Maintain" button;
- 3. User clicks on "**Delete**" button;
- 4. User is prompted to enter the **Model\_ID**;
- 5. All information is displayed on screen (Model ID, Model, Make).
- 6. Prompt user to confirm the information to delete;
- 7. User confirms delete by clicking on the "**Delete**" button.

#### Dealership Manager, Finance Manager:

```
DELETE FROM Models

WHERE Model_ID BETWEEN 'che000' AND 'chezzz'
```

#### 49. Use case name: Querying Models within Dealership

#### Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Models" button;
- 2. User clicks on "Query" button;
- 3. Prompt user to enter Model information (Model\_ID, Model, Make);
- 4. User clicks on the "Request" button;
- 5. All information is displayed on the screen;

#### Branch Manager, Salesman:

```
FROM Models
WHERE Make = 'Chevrolet';
```

#### 50. Use case name: Reporting on Models within Dealership

## Actor/User: Branch Manager, Salesman

Steps:

- 1. User clicks on "Models" button;
- 2. User clicks on "Report" button;
- 3. Prompt user to enter Model Information (Model\_ID, Model, Make);
- 4. User clicks on "Run Report";
- 5. Report containing all information for the Model is displayed on screen.
- 6. User may click on "Print Report" if needed.

## Branch Manager, Salesman:

SELECT DISTINCT Model ID, Model, Make, Vehicle.price

FROM Models

INNER JOIN Vehicles

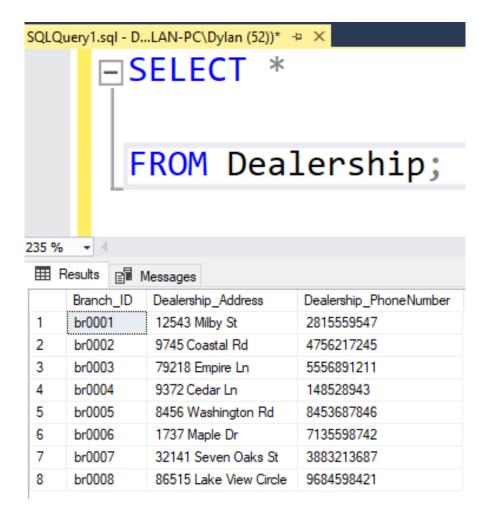
ON Models.Model ID = Vehicles.Model ID

ORDER BY Model\_ID;

# - Testing -

#### SHOW ALL DATA SQL STATEMENTS

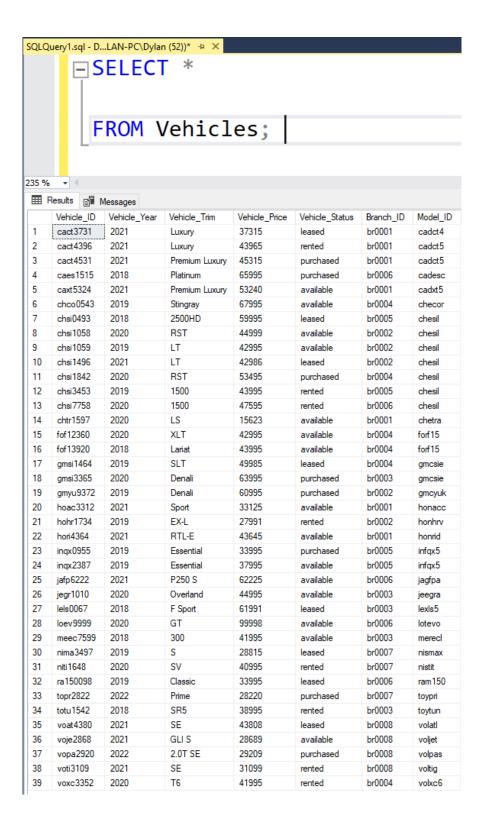
## Query the Dealership Table



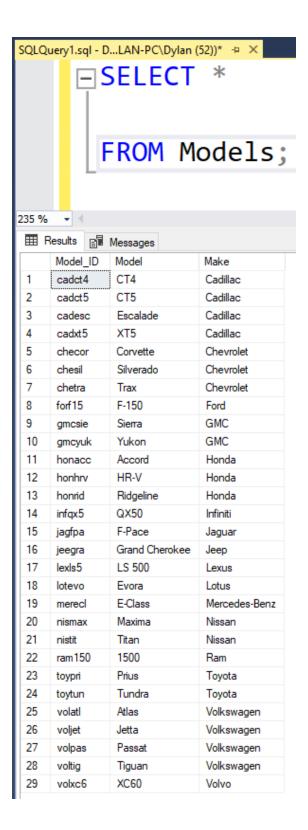
# Query the Dealership\_Staff Table

		SELEC	T *					
	H	FROM	Deal	ership_	Staff;			
	1			• -				
F 0/								
⊞ Results P Messages								
ш г	Staff_ID	Messages Staff_fName	Staff_IName	Staff_Address	Staff_PhoneNumber	Position_Title	Salary	Brand
	aa0098	Anand	Alexander	1919 Francisco Street	5557798714	Salesperson	36214	br000
2	ab 1235	Anisha	Bonner	5433 Jacinto Court	2812819545	Salesperson	37500	br000
3	ab 7561	Aminah	Bannister	7456 Happy Lane	4569842341	Salesperson	38500	br000
1	ac9967	Amaan	Coombes	789 Hoopfer Way	1024556978	Salesperson	38568	br000
5	ah0694	Adeel	Homer	985 Cabana Court	7871698412	Salesperson	38457	br000
5	as4875	Amaya	Seymour	9952 Camino Rey Dr	1368495754	Salesperson	38789	br000
7	at 1965	Ana	Trevino	714 Greenhill Trail	2225684789	Salesperson	36950	br000
3	aw3351	Areeb	Whitmore	1919 Gravel Court	9984751457	Finance Manager	67990	br000
)	az7215	Arielle	Zuniga	1515 Greer Lane	5247873457	Salesperson	40000	br000
0	bb8731	Britany	Brown	7874 Golf Lane	4447768647	Salesperson	39500	br000
1	bb8731 bh9124	Britney	Haines	7541 Gray Court	3369842456	Regional Director	103000	br00
2	bm0247	Beth	Marsden	854 Isleworth Circle	4168941719	Salesperson	69854	br00
3	ca9841	Carolyn	Arellano	654 Gibson Avenue	8413788463	Salesperson	37957	br00
4	cb5547	Cloe	Bum	8946 Hibemia Lane	4116783147	Salesperson	36200	br00
5	cb7014	Carla	Bob	4487 Gaucho Way	5557241164	Salesperson	37214	br00
6	cc2214	Ceri	Cook	3354 Holton Avenue	4459873245	Salesperson	37895	br00
7	cc9734	Caroline	Cooke	524 Heron Court	1514796258	Salesperson	39250	br00
8	cf7514	Caleb		123 Heman Avenue	1145876354	Salesperson	39100	br00
9	cq3000	Cleo	Flynn	841 Dill Lane			69400	br00
	ch2243		Gay		7181387864	Finance Manager		
0		Chloe-Louise	Hodge	212 Ithaca Terrace	7134456289	Finance Manager	65000	br00
1	ср0316	Corinne	Plummer	877 Garden Street	3334548721	Salesperson	37899	br00
2	cw2525	Carla	Willis	111 Jubilee Court	3335869745	Salesperson	39500	br00
3	dc1776	Dora	Conner	1012 Ely Place	9718461786	Salesperson	37484	br00
4	dp4163	Dottie	Pacheco	8041 Hubbs Street	4748123564	Salesperson	39933	br00
5	dr8764	Dwayne	Rice	123 Hershey Lane	5459861475	Salesperson	38500	br00
6	ds1543	Dane	Sykes	2255 Grant Way	9852477536	Salesperson	37840	br00
7	ef1245	Effie	Feeny	2222 Formosa St	1122234568	Salesperson	39974	br00
8	ew5211	Efe	Watson	1145 Huey Lane	1447778896	Salesperson	39100	br00
9	fh1173	Florrie	Humphreys	98732 Bayhill Dr	2135649879	Regional Director	101000	br00
0	fj7954	Frank	Jarvis	13409 Cajon Court	9747316445	Salesperson	38752	br00
1	f17468	Flora	Laing	777 Inner Circle	8865477241	Salesperson	37550	br00
2	gr3368	Gabriel	Robson	475 Joy Lane	3468757421	Salesperson	39000	br00
3	gt4040	Georgia	Thome	872 Diver Drive	3337675498	Salesperson	384754	br00
4	hb2354	Helena	Bassett	791 Iron Oak Way	9845632564	Salesperson	38454	br00
5	hI0048	Husna	Lucas	1232 Gale Lane	5559862841	Salesperson	36854	br00
6	ht9514	Haleemah	Timms	23 Jordon Street	2347854986	Salesperson	38000	br00
7	ic2288	Irfan	Castillo	9781 Great Falls Drive	2259874346	Salesperson	36200	br00
8	ic9845	Inayah	Connelly	1487 Graves Place	4446878745	Dealership Man	89630	br00
9	if7841	Ibraheem	Figueroa	777 Jackpot Court	3468884579	Salesperson	37000	br00
0	ij1027	Izaak	Jennings	9846 Grey Dove Lane	3134779648	Salesperson	38520	br00
1	ja3364	Jannat	Adkins	996 Good Hope Way	9794648514	Salesperson	38792	br00
2	jm6307	Jun	Millington	6431 Deptford Aven	2224518798	Dealership Man	89300	br00
3	js3344	Joss	Snider	32 Irwin Path	1448451368	Salesperson	38210	br00
4	kb3665	Kirsty	Blackwell	1025 Goose Creek	7785214978	Salesperson	39875	br00
5	kb6472	Kain	Betts	225 Henry Loop	8119456123	Dealership Man	88630	br00
6	km3369	Kaitlan	Mcclure	1200 Jace Place	2813467138	Salesperson	36500	br00
7	ks8822	Khadeeja	Savage	741 Goldberg Street	8685214653	Salesperson	38200	br00
8	kt8668	Krisha	Taylor	1100 Gold Place	7785142365	Finance Manager	68584	br00
9	lb0124	Laibah	Bryan	9985 Hood Place	8945661231	Regional Director	100500	br00
0	lb6632	Leela	Baird	1213 Hilda Way	4117934783	Salesperson	36853	br00
1	lk3875	Lynn	Kemp	77 Hoyos Court	6749344431	Finance Manager	62000	br00
2	lm0014	Lilly-Mai	Mansell	946 Horvat Lane	4653247897	Salesperson	39865	br00
3	In 3574	Luella	Peterson	234 Horseshoe Lane	4462147845	Salesnerson	39300	hr00

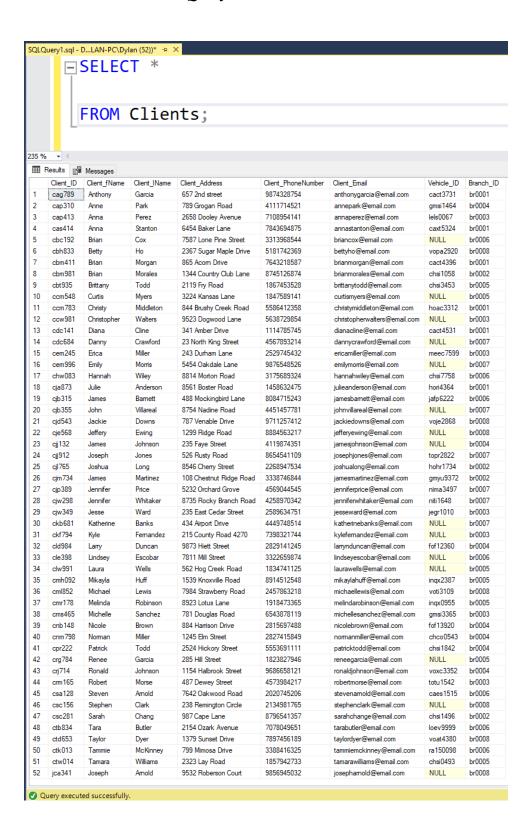
#### Query the Vehicles Table



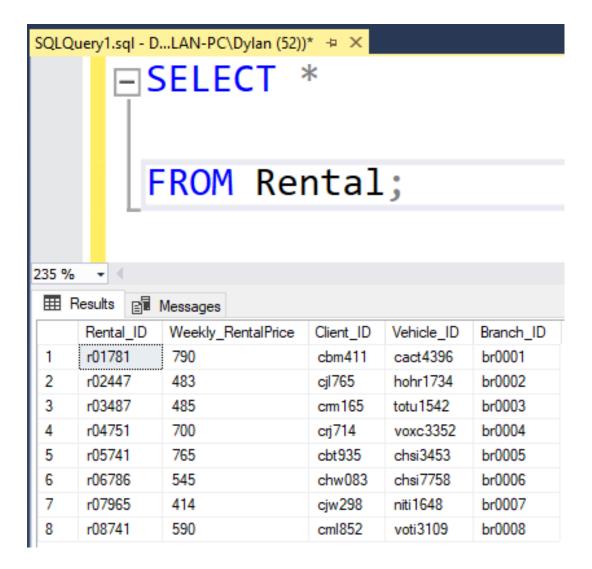
## Query the Models Table



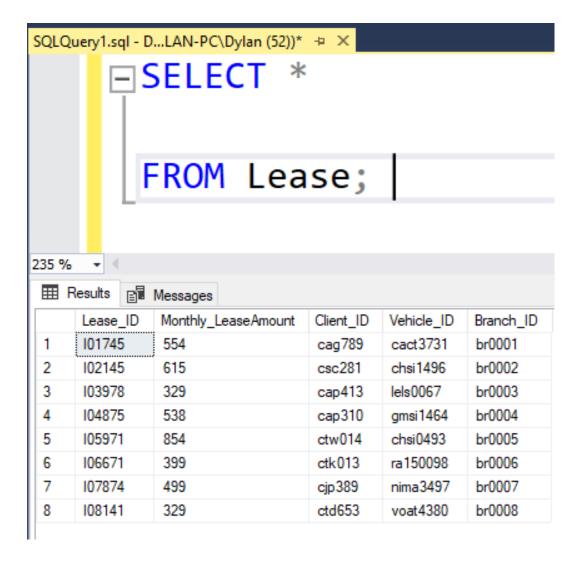
#### Query the Clients Table



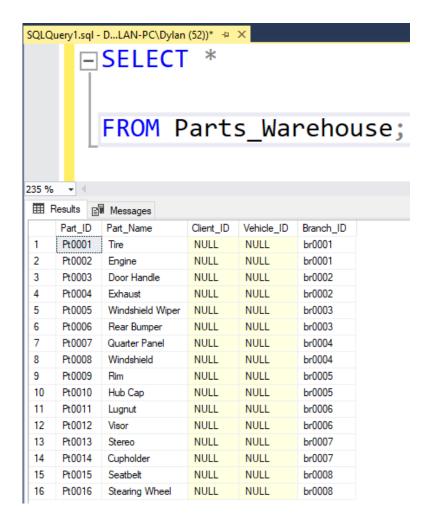
## Query the Rental Table



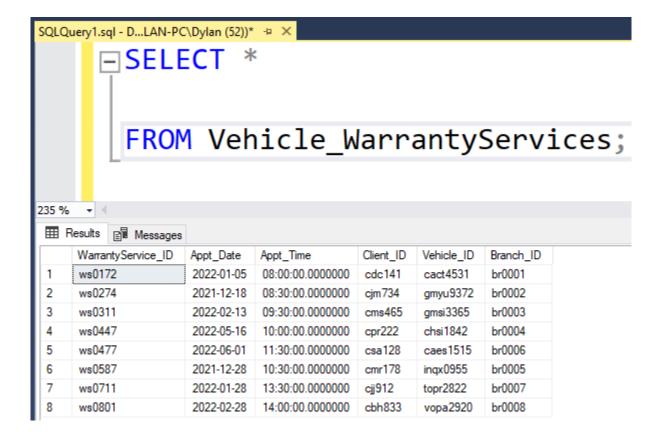
## Query the Lease Table



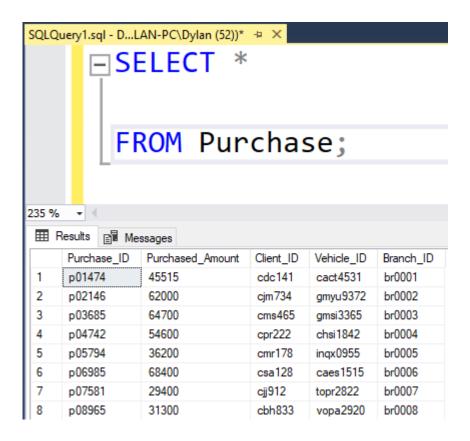
## Query the Parts\_Warehouse Table



#### Query the Vehicle\_WarrantyServices Table



## Query the Purchase Table



# - AGGREGATE SQL STATEMENTS -

## Aggregate count statement from Dealership Table

```
SQLQuery1.sql - D...LAN-PC\Dylan (52))* * X

SELECT DISTINCT COUNT (*) AS Total_Dealerships

FROM Dealership

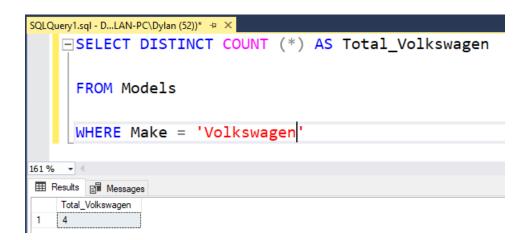
WHERE Branch_ID = 'br0001' OR Branch_ID = 'br0002';

Results Messages

Total_Dealerships

1 2
```

## Aggregate count statement from Model Table



# Aggregate count statement from Dealership\_Staff Table

```
SQLQuery1.sql - D...LAN-PC\Dylan (52))* ** X

SELECT DISTINCT COUNT (*) AS Total_DealershipStaff

FROM Dealership_Staff

WHERE Branch_ID = 'br0003' OR Branch_ID = 'br0008';

### Results ** Messages

| Total_DealershipStaff | 1 20
```

## Aggregate count statement from Clients Table

```
SQLQuery1.sql-D...LAN-PC\Dylan (52))* ** X

SELECT DISTINCT COUNT (*) AS Total_DealershipClients

FROM Clients

WHERE Branch_ID = 'br0001';

161% **

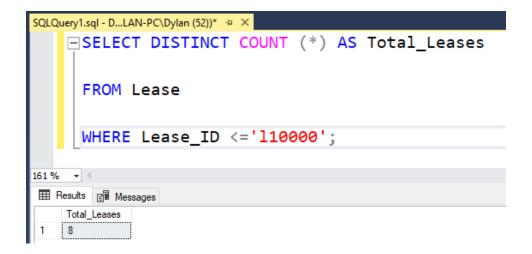
Results ** Messages

Total_DealershipClients

1 6
```

# Aggregate count statement from Vehicles Table

## Aggregate count statement from Lease Table



## Aggregate count statement from Rental Table

```
SQLQuery1.sql - D...LAN-PC\Dylan (52))* * X

SELECT DISTINCT COUNT (*) AS Total_Rentals

FROM Rental

WHERE Branch_ID = 'br0001' OR Branch_ID = 'br0005';

### Results ** Messages**

Total_Rentals ** Total_Renta
```

## Aggregate count statement from Purchase Table

# Aggregate count statement from Vehicle\_WarrantyServices Table

```
SQLQuery1.sql - D...LAN-PC\Dylan (52))* *>

SELECT DISTINCT COUNT (*) AS Total_WarrantyServices

FROM Vehicle_WarrantyServices

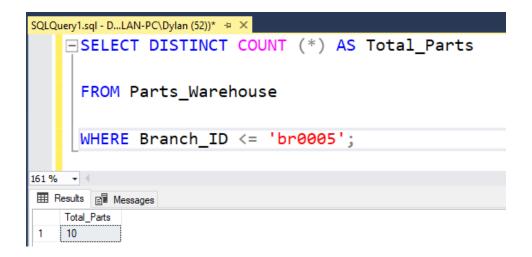
161 % 

Results Messages

Total_WarrantyServices

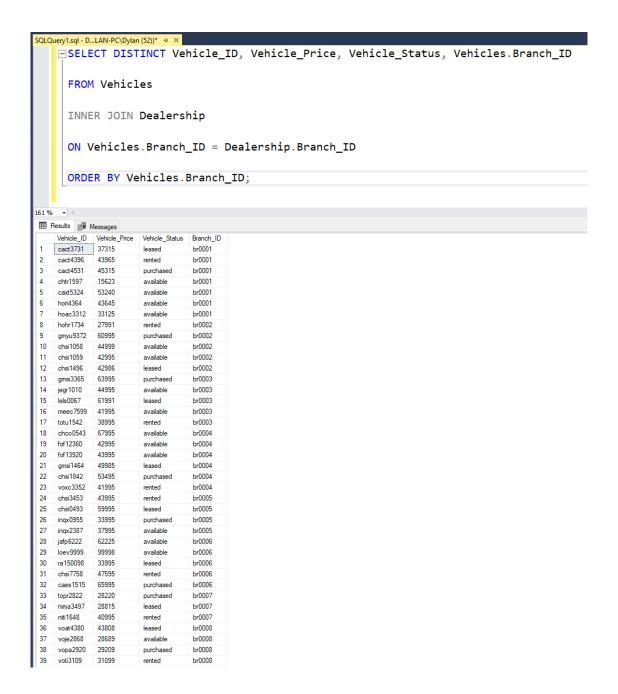
1 8
```

# Aggregate count statement from Parts\_Warehouse Table

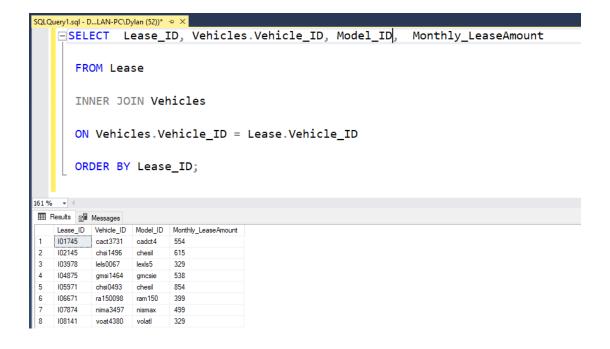


# - JOINT SQL STATEMENTS -

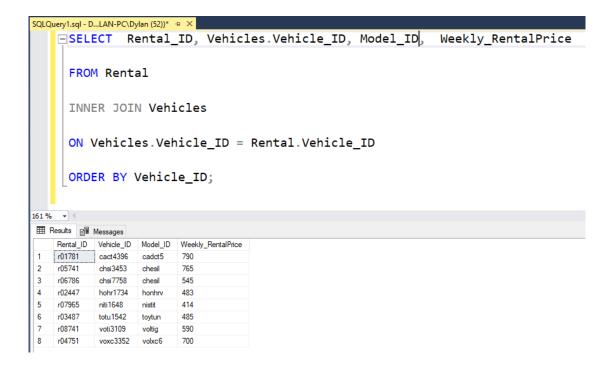
#### Joint query between Vehicles and Dealership Tables



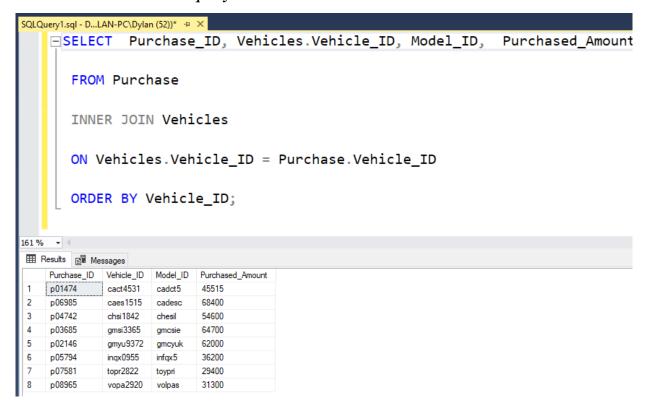
#### Joint query between Vehicles and Lease Tables



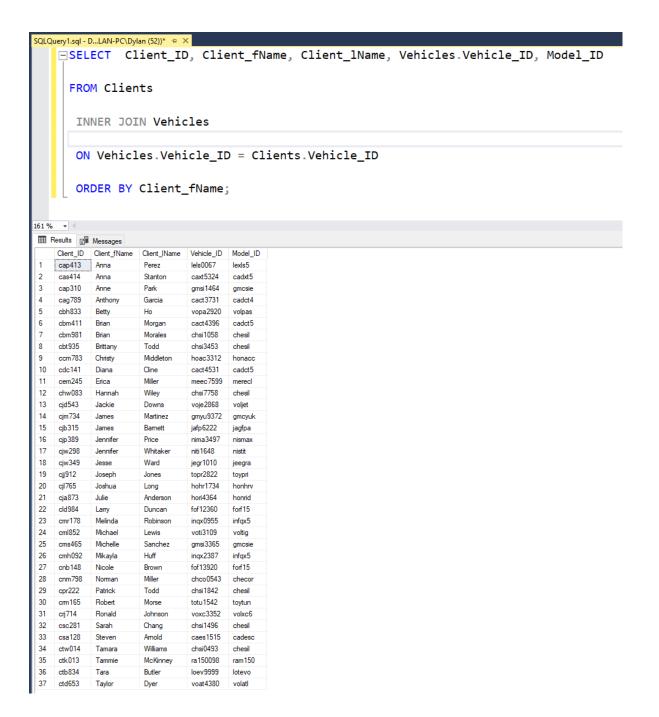
#### Joint query between Vehicles and Rental Tables



## Joint query between Vehicles and Purchase Tables



#### Joint query between Vehicles and Clients Tables



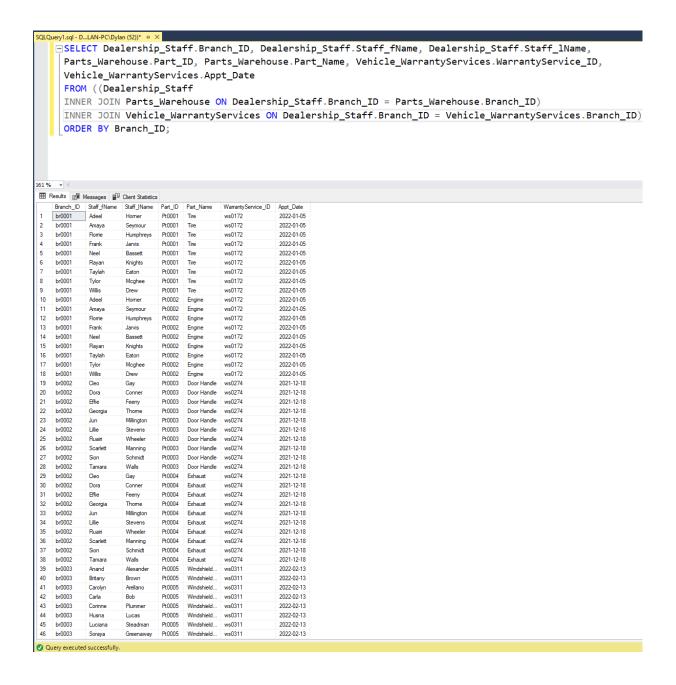
#### Joint query between Clients and Dealership Tables



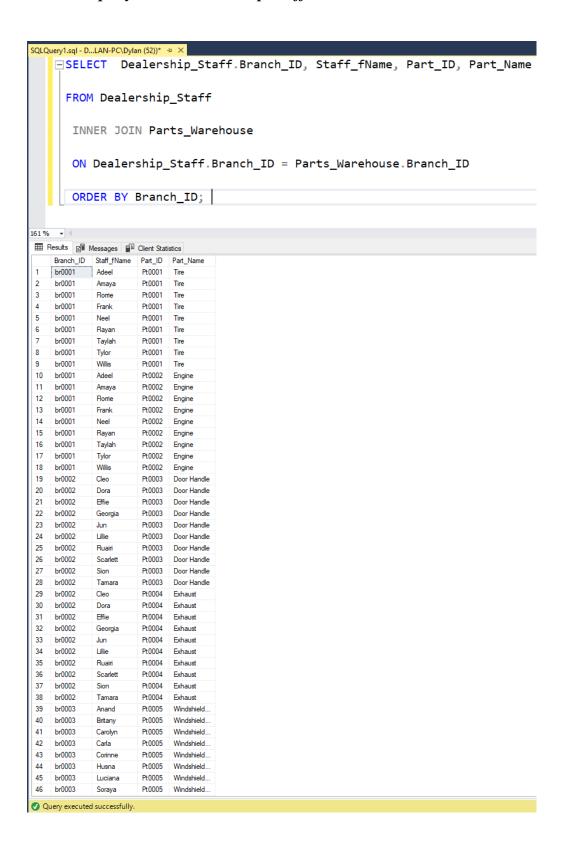
#### Joint query between Dealership\_Staff and Dealership Tables



# Joint query between Dealership\_Staff, Parts\_Warehouse, and Vehicle\_WarrantyServices Tables



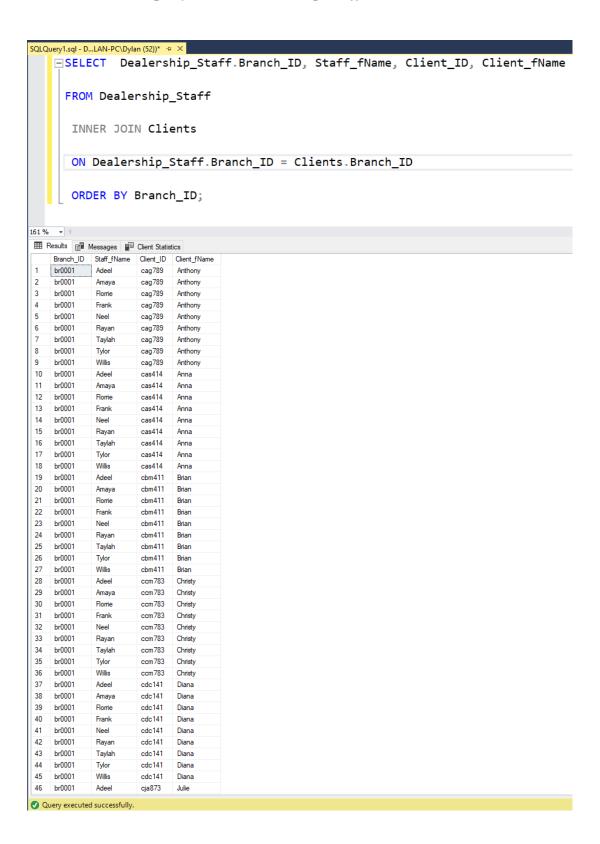
#### Joint query between Dealership\_Staff and Parts\_Warehouse Tables



#### Joint query between Vehicles and Models Tables

```
SQLQuery1.sql - D...LAN-PC\Dylan (52))*   ⇒   ×
      SELECT Vehicles.Vehicle_ID, Vehicles.Model_ID, Models.Make, Models.Model
         FROM Vehicles
         INNER JOIN Models
         ON Vehicles.Model_ID = Models.Model_ID
        ORDER BY Vehicle_ID;
161 % + 4
Results Messages Client Statistics
      Vehicle_ID Model_ID Make
                                        Model
     cact3731 cadct4
                          Cadillac
                                        CT4
      cact4396
                cadct5
                          Cadillac
                                        CT5
     cact4531
                 cadct5
                          Cadillac
                                        CT5
                          Cadillac
     caes1515
                cadesc
                                         Escalade
     caxt5324
                cadxt5
                          Cadillac
                                        XT5
     chco0543
                                         Corvette
                checor
                          Chevrolet
     chsi0493
                chesil
                          Chevrolet
                                         Silverado
     chsi1058
                          Chevrolet
                                         Silverado
      chsi1059
                          Chevrolet
                                         Silverado
                chesil
 10
     chsi1496
                          Chevrolet
                                         Silverado
     chsi1842
                          Chevrolet
                                        Silverado
 11
                chesil
     chsi3453
                chesil
                          Chevrolet
                                         Silverado
 13
     chsi7758
                chesil
                          Chevrolet
                                         Silverado
 14
     chtr1597
                chetra
                          Chevrolet
                                         Trax
     fof12360
                                         F-150
     fof13920
                                         F-150
 16
                forf 15
                          Ford
 17
      gmsi1464
                          GMC
                                         Sierra
                 gmcsie
     gmsi3365
                          GMC
                                         Sierra
 18
                gmcsie
     gmyu9372
                gmcyuk
                          GMC
                                         Yukon
 20
     hoac3312
                          Honda
                                         Accord
                honacc
 21
     hohr1734
                 honhrv
                          Honda
                                         HR-V
     hori4364
                          Honda
                                         Ridgeline
                honrid
 23
     inqx0955
                                        QX50
                infqx5
                          Infiniti
 24
      inqx2387
                 infqx5
                                        QX50
 25
     iafp6222
                                        F-Page
                jagfpa
                          Jaguar
     jegr1010
                jeegra
                           Jeep
                                         Grand Cherokee
 27
      lels0067
                                        LS 500
                 lexls5
                          Lexus
 28
     loev9999
                          Lotus
                                         Evora
 29
     meec7599
                          Mercedes-Benz
                                        E-Class
                merecl
 30
     nima3497
                nismax
                          Nissan
                                         Maxima
 31
     niti 1648
                nistit
                           Nissan
                                         Titan
 32
     ra150098
                ram 150
                          Ram
                                         1500
     topr2822
                                         Prius
                toypri
                           Toyota
 34
     totu 1542
                tovtun
                          Tovota
                                         Tundra
 35
      voat4380
                volatl
                          Volkswagen
                                         Atlas
      voje2868
                          Volkswagen
                voliet
                                         Jetta
 37
      vopa2920
                volpas
                          Volkswagen
                                         Passat
 38
      voti3109
                 voltig
                           Volkswagen
                                         Tiguan
      voxc3352
                volxc6
                                         XC60
```

#### Joint query between Dealership\_Staff and Clients tables



#### - Conclusion -

The DBMS project, automobile database management system is for the creation of a working database for several local dealerships. The DBMS allows for the collection of each dealership's data, which includes staff, clients, dealership information, vehicles, warranty services, and parts. The system allows users to enter, update and delete the information of each entity related to the dealerships. Furthermore, the users can extract reports, perform queries of the data, thus allowing users to view various information pertaining to each dealership. The database is very easy to use and can be adapted to new dealerships if needed. The DBMS project was very insightful and allowed our team to experience the process of creating a DBMS from scratch. The flow of the project and its requirements allowed us to learn while being able to create the DBMS. The additional modifications and requirements from phase to phase provided various opportunities to apply the knowledge and material received from instruction.

#### - References -

Connolly, Thomas M., and Carolyn E. Beg. Database Systems : a Practical Approach to Design,
Implementation, and Management . Sixth edition., Pearson, 2015.

"SQL Tutorial." <u>www.W3schools.com</u>, <u>www.w3schools.com/sql/default.asp</u>. Accessed 4 Nov. 2021.

"SQL Tutorial" www. Quackit. Com, www.quackit.com/sql/tutorial. Accessed 13 Nov. 2021.