

***Database Design & Implementation***  
***Final Project***

**Class:** Database Design and Implementation (ITSC 3160)

**Instructor:** Azhar Ahamad

**Date:** 05 / 02 / 2025

**Team Members**

- **Aiden Baker Crouse** - Documentation set up, Functional documentation, Requirements documentation, Conceptual documentation, Document summary, ER diagram, Data entry
- **Alex Woloszyk** - Logical diagram organization, SQL database setup and queries, Data entry,
- **Christian Chapman** - Logical diagram implementation, Data entry
- **Simon Ocsenas** - Logical diagram continuation, Normalization documentation & checking, Data entry

**Details:** Car Dealership via Oracle LiveSQL and Lucidchart

## **Project Overview**

**Description:** A car dealership database system that is designed to handle both managerial and inventory management functions such as customer browsing, vehicle listing, transaction details, employee details, etc.

**Objective:** The goal of this database is to allow for efficient management of vehicle, customer, and employee data in a safe, secure, and reliable manner.

**Scope:** This database will encompass Customer, Manufacturer, Vehicle, Model, Transactional, and Employee entities.

## Requirements

### Data Requirements (Entity Structures)

Customers	Manufacturers	Models	Vehicles	Employees	Transactions
ID	ID	ID	Vin	ID	ID
Name	Name	Model Name	Model ID	Name	Vin
Address	Country	Manufacturer ID	Year	Position	Customer ID
Phone	Year Founded	MSRP	Color	Manager ID	Employee ID
Email	Parent Company	Year Introduced	Price	Hire Date	Value

**Functionality:** The database that this project is based on will revolve around the day to day activities of a car dealership. The main functions can be broken down into the following categories. Vehicle Identification and Management, Transaction Detailing, Customer Identification, and Employee identification.

Vehicles will have their own VIN and model attached, which will allow for vehicles to be linked into a transaction. MSRP information about the vehicle can be gathered by looking into the models table and selecting the ID match to the vehicle. Year, color, and price will also be visible on a vehicle by vehicle basis.

Customers will be linked to transactions via their ID. It will be possible to view who assisted them with a purchase, what vehicle they purchased, and the overall value of their transaction.

Employees will behave similarly in the database. They will have their own unique ID, will be able to view transactions that they assisted with, as well as some unique, employee specific data, such as their position, hire date, and manager (if applicable)

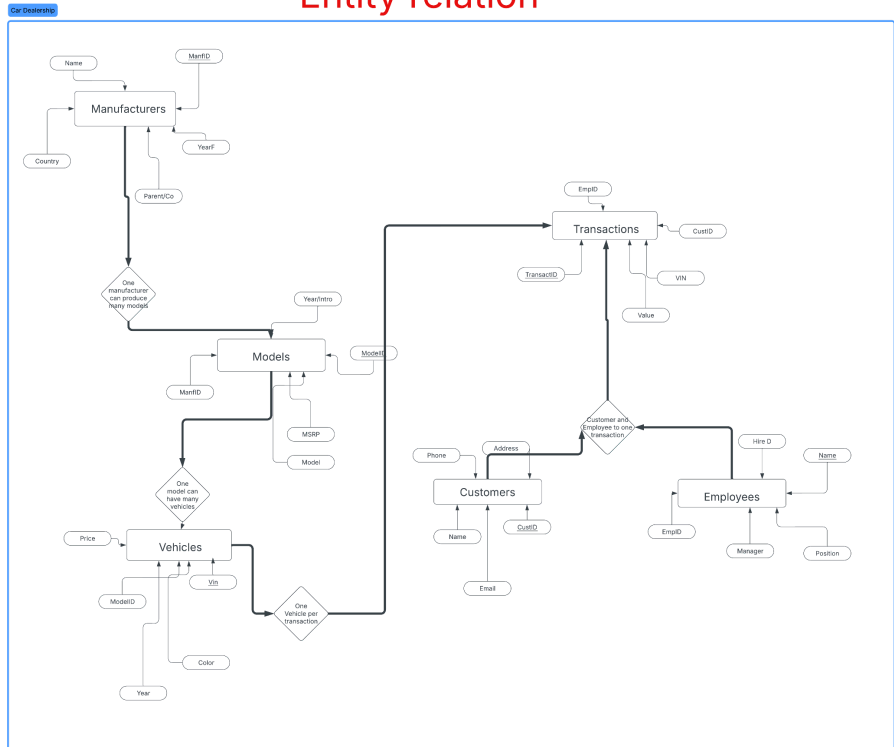
## Conceptual Design

Lucidchart docum...

### Entity and Attribute Relations:

The car dealership database has six main entities. As mentioned above, these are the Customers, Manufacturers, Models, Vehicles, Employees, and Transaction tables. A customer entity will have an ID, name, address, phone, and email. The CustomerID will be used in conjunction with the transaction entity. A transaction entity will have its own ID, vin number (in reference to a vehicle), employeeID (in reference to an employee), a value, and then the CustomerID (which will be used to identify customers who have purchased a vehicle).

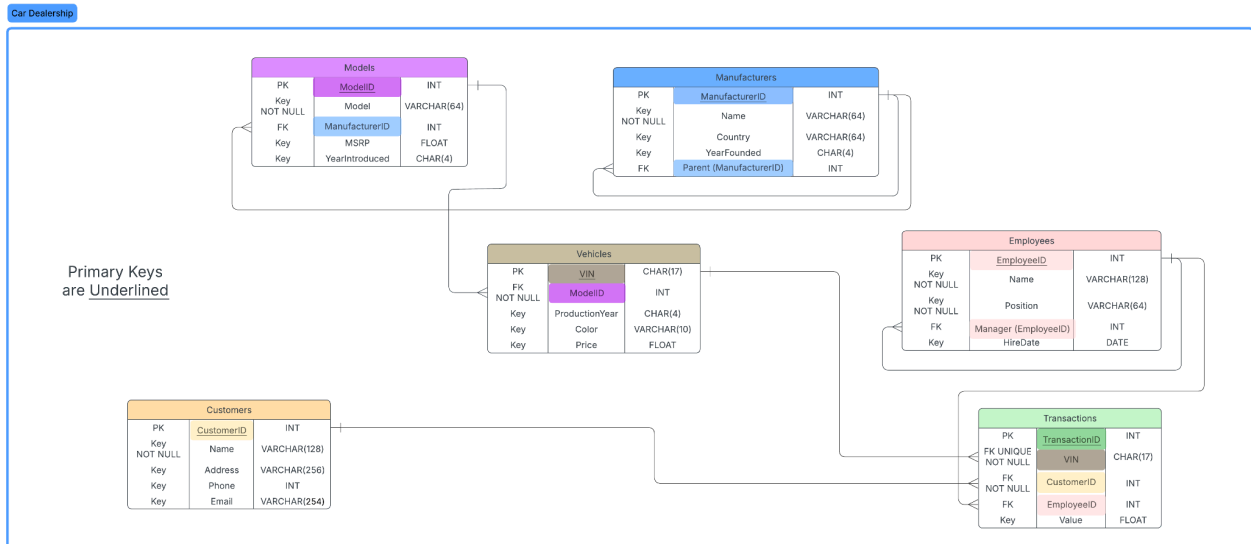
### Entity relation



A vehicle entity will have its own VIN, serving as a key, a Model ID (reference the base model the car inherently is), as well as a year, color, and price attribute. The Models entity has its own Model ID, Model Name, ManufacturerID (manufacturing company), MSRP, and year Introduced field. The actual manufacturer entity will have an ID, name, country, year founded, and a reference to the parent company (if applicable). For example, Lexus is branded as the luxury subsidiary of Toyota, so its parent company field would be the ID of Toyota.

Finally, the Employee entity will have an ID, name, position, manager (which will be the Employee ID of whomever is managing them), and a hiredate.

# Logical Diagram



## Normalization:

- 1NF Compliance
  - ✓ All tables have atomic values
  - ✓ No repeating groups (arrays/comma-separated values)
- 2NF Compliance
  - ✓ All non-key attributes fully depend on the entire PK
  - ✓ No partial dependencies (e.g., Price depends only on VIN, not ModelID)
- 3NF Compliance
  - ✓ No transitive dependencies (e.g., MSRP in Models doesn't depend on ManufacturerID—it's model-specific)
  - ✓ Foreign keys only reference PKs in other tables

## Physical Model (Bonus Views Included)

```
-- Clear tables
DROP VIEW VehicleInfo;
DROP VIEW Inventory;
DROP VIEW TransactionDetails;
DROP TABLE Transactions;
DROP TABLE Customers;
DROP TABLE Employees;
DROP TABLE Vehicles;
DROP TABLE Models;
DROP TABLE Manufacturers;

-- Creating tables
CREATE TABLE Vehicles (
    VIN CHAR(17) PRIMARY KEY,
    ModelID INT NOT NULL,
    ProductionYear CHAR(4),
    Color VARCHAR(10),
    Price FLOAT
);
CREATE TABLE Manufacturers (
    ManufacturerID INT PRIMARY KEY,
    Name VARCHAR(64) NOT NULL,
    Country VARCHAR(64),
    YearFounded CHAR(4),
    Parent INT
);
CREATE TABLE Models (
    ModelID INT PRIMARY KEY,
    Model VARCHAR(64) NOT NULL,
    ManufacturerID INT,
    MSRP FLOAT,
    YearIntroduced CHAR(4)
);
CREATE TABLE Employees (
    EmployeeID INT PRIMARY KEY,
    Name VARCHAR(128) NOT NULL,
    Position VARCHAR(64) NOT NULL,
    Manager INT,
    HireDate DATE
);
CREATE TABLE Customers (
    CustomerID INT PRIMARY KEY,
    Name VARCHAR(128) NOT NULL,
    Address VARCHAR(256),
    Phone INT,
    Email VARCHAR(254) -- maximum length for an email per spec
);
CREATE TABLE Transactions (
    TransactionID INT PRIMARY KEY,
    VIN CHAR(17) UNIQUE NOT NULL,
```

See Next Page

```

    CustomerID INT NOT NULL,
    EmployeeID INT,
    TransactionValue Float
);

ALTER TABLE Vehicles ADD FOREIGN KEY (ModelID) REFERENCES Models(ModelID);
ALTER TABLE Manufacturers ADD FOREIGN KEY (Parent) REFERENCES Manufacturers(ManufacturerID);
ALTER TABLE Models ADD FOREIGN KEY (ManufacturerID) REFERENCES Manufacturers(ManufacturerID);
ALTER TABLE Employees ADD FOREIGN KEY (Manager) REFERENCES Employees(EmployeeID);
ALTER TABLE Transactions ADD FOREIGN KEY (VIN) REFERENCES Vehicles(VIN);
ALTER TABLE Transactions ADD FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID);
ALTER TABLE Transactions ADD FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID);

CREATE VIEW VehicleInfo AS
SELECT Vehicles.VIN, Manufacturers.Name || ' ' || Models.Model AS Model,
Vehicles.ProductionYear AS "Model Year", Vehicles.Color, Vehicles.Price
FROM Vehicles, Manufacturers, Models
WHERE Vehicles.ModelID = Models.ModelID
AND Models.ManufacturerID = Manufacturers.ManufacturerID;

CREATE VIEW Inventory AS
SELECT VehicleInfo.VIN, VehicleInfo.Model, VehicleInfo."Model Year", VehicleInfo.Color,
VehicleInfo.Price
FROM VehicleInfo
LEFT JOIN Transactions ON VehicleInfo.VIN = Transactions.VIN
WHERE Transactions.VIN IS NULL;

CREATE VIEW TransactionDetails AS
SELECT Transactions.TransactionID,
Customers.Name AS "Customer Name",
VehicleInfo."Model Year",
VehicleInfo.VIN, VehicleInfo.Model,
VehicleInfo.Color, Transactions.TransactionValue AS "Sale Price",
Employees.Name AS Salesperson
FROM VehicleInfo
LEFT JOIN Transactions ON VehicleInfo.VIN = Transactions.VIN
LEFT JOIN Customers ON Customers.CustomerID = Transactions.CustomerID
LEFT JOIN Employees ON Employees.EmployeeID = Transactions.EmployeeID
WHERE VehicleInfo.VIN = Transactions.VIN;

-- Creating Customer Entities
INSERT INTO Customers VALUES (28341721601, 'James Wilson', '124 Main St, Charlotte, NC',
7045551234, 'james.wilson@hotmail.com');
INSERT INTO Customers VALUES (28341721602, 'Mary Johnson', '456 Oak Ave, Raleigh, NC',
9195552345, 'mary.johnson@gmail.com');
INSERT INTO Customers VALUES (28341721603, 'Robert Smith', '789 Pine Rd, Greensboro, NC',
3365553456, 'robert.smith@yahoo.com');
INSERT INTO Customers VALUES (28341721604, 'Patricia Williams', '321 Elm St, Greenville, SC',
8645554567, 'patricia.williams@outlook.com');
INSERT INTO Customers VALUES (28341721605, 'John Brown', '654 Maple Dr, Charleston, SC',
843555678, 'john.brown@hotmail.com');
INSERT INTO Customers VALUES (28341721606, 'Jennifer Davis', '987 Cedar Ln, Richmond, VA',
8045556789, 'jennifer.davis@gmail.com');

```

See Next Page

```

INSERT INTO Customers VALUES (28341721607, 'Michael Miller', '159 Birch Blvd, Virginia Beach, VA', 7575557890, 'michael.miller@yahoo.com');
INSERT INTO Customers VALUES (28341721608, 'Linda Wilson', '753 Spruce Way, Nashville, TN', 6155558901, 'linda.wilson@outlook.com');
INSERT INTO Customers VALUES (28341721609, 'William Moore', '357 Willow Ct, Knoxville, TN', 8655559012, 'william.moore@hotmail.com');
INSERT INTO Customers VALUES (28341721610, 'Elizabeth Taylor', '852 Redwood Ave, Atlanta, GA', 4045550123, 'elizabeth.taylor@gmail.com');
INSERT INTO Customers VALUES (28341721611, 'David Anderson', '258 Sycamore St, Savannah, GA', 9125551234, 'david.anderson@yahoo.com');
INSERT INTO Customers VALUES (28341721612, 'Barbara Thomas', '654 Aspen Dr, Durham, NC', 9195552345, 'barbara.thomas@outlook.com');
INSERT INTO Customers VALUES (28341721613, 'Richard Jackson', '951 Magnolia Ln, Winston-Salem, NC', 3365553456, 'richard.jackson@hotmail.com');
INSERT INTO Customers VALUES (28341721614, 'Susan White', '753 Dogwood Rd, Asheville, NC', 8285554567, 'susan.white@gmail.com');
INSERT INTO Customers VALUES (28341721615, 'Thomas Alexander', '814 Maple Pine Rd, Asheville, NC', 8286784467, 'thomas.alexander@gmail.com');
INSERT INTO Customers VALUES (28341721616, 'Yvette', '2194 Fish Pond Dr, Gales, NC', 8383194786, 'yvtnim749@icloud.com');
INSERT INTO Customers VALUES (28341721617, 'Aiden Baker Crouse', '123 My Address Road, Vale, NC', 8282228888, 'abakercr@charlotte.edu');
INSERT INTO Customers VALUES (28341721618, 'Alex Woloszyk', '3124 My Address Road, Hickory, NC', 8285554986, 'awolosz1@charlotte.edu');
INSERT INTO Customers VALUES (28341721619, 'Simon Ocsenas', '10914 Also My Address Road, Durham, NC', 9198847972, 'socsenas@charlotte.edu');
INSERT INTO Customers VALUES (28341721620, 'Christian Chapman', '6536 Anyroad, Anytown, NC', 8281236490, 'cchapm45@charlotte.edu');
INSERT INTO Customers VALUES (28341721621, 'Charles Marc Hervé Perceval Leclerc', 'Casino Square, Monaco', 377612345678, 'charles@scuderiaferrari.com');
INSERT INTO Customers VALUES (28341721622, 'Mint Marion', 'at Levine Center for the Arts, 500 S Tryon St, Charlotte, NC', 7043372000, 'marint@mintmuseum.org');

```

```
-- Creating Employee Entities
```

```

INSERT INTO Employees VALUES (28341721501, 'John Carter', 'Sales Manager', NULL, DATE '2018-08-31');
INSERT INTO Employees VALUES (28341721502, 'Sarah Johnson', 'Sales Associate', 28341721501, DATE '2020-04-01');
INSERT INTO Employees VALUES (28341721503, 'Michael Brown', 'Finance Manager', NULL, DATE '2017-07-24');
INSERT INTO Employees VALUES (28341721504, 'Emily Davis', 'Finance Associate', 28341721503, DATE '2021-05-03');
INSERT INTO Employees VALUES (28341721505, 'Robert Wilson', 'Service Manager', NULL, DATE '2016-11-02');
INSERT INTO Employees VALUES (28341721506, 'Jennifer Lee', 'Technician', 28341721505, DATE '2019-01-07');
INSERT INTO Employees VALUES (28341721507, 'David Kim', 'Technician', 28341721505, DATE '2020-02-29');
INSERT INTO Employees VALUES (28341721508, 'Jessica Martinez', 'Sales Associate', 28341721501, DATE '2022-06-06');
INSERT INTO Employees VALUES (28341721509, 'Thomas Anderson', 'Detail Specialist', 28341721505, DATE '2021-04-27');

```

See Next Page

```

INSERT INTO Employees VALUES (28341721510, 'Lisa Taylor', 'Inventory Manager', NULL, DATE
'2015-02-21');
INSERT INTO Employees VALUES (28341721511, 'Christopher Harris', 'Lot Attendant', 28341721510,
DATE '2023-07-01');
INSERT INTO Employees VALUES (28341721512, 'Amanda Clark', 'Sales Associate', 28341721501,
DATE '2022-08-25');
INSERT INTO Employees VALUES (28341721513, 'Daniel Lewis', 'Finance Associate', 28341721503,
DATE '2021-07-11');
INSERT INTO Employees VALUES (28341721514, 'Melissa Walker', 'Receptionist', NULL, DATE
'2020-03-07');
INSERT INTO Employees VALUES (28341721515, 'Matthew Hall', 'Delivery Driver', 28341721510,
DATE '2023-04-24');

-- Creating Manufacturer Entities
-- Lucid because LucidCharts
INSERT INTO Manufacturers VALUES (28341721701, 'Lucid', 'United States', '2007', NULL);
-- Everything else
INSERT INTO Manufacturers VALUES (28341721705, 'Honda', 'Japan', '1948', NULL);
INSERT INTO Manufacturers VALUES (28341721714, 'Acura', 'Japan', '1968', 28341721705);

INSERT INTO Manufacturers VALUES (28341721702, 'Porsche', 'Germany', '1931', NULL);
INSERT INTO Manufacturers VALUES (28341721707, 'Volkswagen', 'Germany', '1937', 28341721702);
UPDATE Manufacturers SET Parent = 28341721707 WHERE ManufacturerID = 28341721702;
INSERT INTO Manufacturers VALUES (28341721718, 'Audi', 'Germany', '1909', 28341721707);
INSERT INTO Manufacturers VALUES (28341721711, 'BMW', 'Germany', '1916', NULL);
INSERT INTO Manufacturers VALUES (28341721724, 'Chrysler', 'United States', '1925', NULL);
INSERT INTO Manufacturers VALUES (28341721725, 'Koenigsegg', 'Sweden', '1994', NULL);
INSERT INTO Manufacturers VALUES (28341721777, 'Makigai', 'Japan', '2020', NULL);
INSERT INTO Manufacturers VALUES (28341721726, 'Ibishu', 'Japan', '1963', NULL);

-- Creating Model Entities
-- Lucid Models
INSERT INTO Models VALUES (23928010001, 'Air', 28341721701, 69900.00, '2021');
INSERT INTO Models VALUES (23928010002, 'Gravity', 28341721701, 94900.00, '2024');

-- Honda Models
INSERT INTO Models VALUES (23928050031, 'Civic', 28341721705, 24250.00, '2021');
INSERT INTO Models VALUES (23928050032, 'Accord', 28341721705, 28295.00, '2018');
INSERT INTO Models VALUES (23928050041, 'CR-V', 28341721705, 30100.00, '2017');
INSERT INTO Models VALUES (23928050081, 'e', 28341721705, 29000.00, '2019');

-- Acura Models
INSERT INTO Models VALUES (23928140028, 'MDX', 28341721714, 37998.00, '2022');
INSERT INTO Models VALUES (23928140029, 'TLX', 28341721714, 30998.00, '2021');
INSERT INTO Models VALUES (23928142005, 'NSX', 28341721714, 156999.00, '2016');

-- Porsche Models
INSERT INTO Models VALUES (23928020003, '911', 28341721702, 992991.00, '2018');
INSERT INTO Models VALUES (23928020004, 'Taycan', 28341721702, 105150.00, '2020');
INSERT INTO Models VALUES (23928020718, '718 Cayman', 28341721702, 54950.00, '2017');
INSERT INTO Models VALUES (23928029711, 'Macan', 28341721702, 44090.00, '2020');

```

See Next Page

```

-- Volkswagen Models
INSERT INTO Models VALUES (23928070014, 'Golf', 28341721707, 33190.00, '2020');
INSERT INTO Models VALUES (23928070015, 'ID.4', 28341721707, 39995.00, '2021');
INSERT INTO Models VALUES (23928070016, 'Beetle', 28341721707, 20895.00, '1938');

-- Audi Models
INSERT INTO Models VALUES (23928180033, 'A4', 28341721718, 45395.00, '2020');
INSERT INTO Models VALUES (23928180034, 'e-tron', 28341721718, 74800.00, '2019');

-- BMW Models
INSERT INTO Models VALUES (23928110022, '3 Series', 28341721711, 45950.00, '2019');
INSERT INTO Models VALUES (23928110023, 'i4', 28341721711, 52800.00, '2022');
INSERT INTO Models VALUES (23928110024, 'i3', 28341721711, 45445.00, '2013');
INSERT INTO Models VALUES (23928110088, 'i8', 28341721711, 160000.00, '2014');

-- Chrysler Models
INSERT INTO Models VALUES (23928240042, '300', 28341721724, 36145, '2011');
INSERT INTO Models VALUES (23928240043, 'Pacifica', 28341721724, 19000, '2017');

-- Koenigsegg Models
INSERT INTO Models VALUES (23928250044, 'Jesko', 28341721725, 3000000, '2020');
INSERT INTO Models VALUES (23928250045, 'Gemera', 28341721725, 1700000, '2023');

-- Makigai Models
INSERT INTO Models VALUES (23928770126, 'MaiMai', 28341721777, 22000, '2032');
INSERT INTO Models VALUES (23928770400, 'Tanishi', 28341721777, 30000, '2030');

-- Ibishu Models
INSERT INTO Models VALUES (23928240055, 'Pigeon', 28341721726, 36145, '1980');

-- Creating Vehicle

-- Lucid Listings
INSERT INTO Vehicles VALUES ('JTHKD5BH7B2061848', 23928010001, '2024', 'Red', 12489.00);
INSERT INTO Vehicles VALUES ('5FNYF3H55EB026654', 23928010002, '2024', 'Blue', 15900.00);
INSERT INTO Vehicles VALUES ('JTHKD5BH7B2061849', 23928010001, '2024', 'Brown', 45909.00);
INSERT INTO Vehicles VALUES ('JTHKD5BH7B2061850', 23928010001, '2024', 'White', 52097.00);
INSERT INTO Vehicles VALUES ('JTHKD5BH7B2061851', 23928010001, '2024', 'Green', 49888.00);
INSERT INTO Vehicles VALUES ('5FNYF3H55EB026658', 23928010002, '2024', 'Blue', 154090.00);

-- Honda Listings
INSERT INTO Vehicles VALUES ('1HGCR2F9XFA879984', 23928050081, '2024', 'Red', 31930.00);
INSERT INTO Vehicles VALUES ('1HGCV1F14JA000001', 23928050032, '2018', 'Blue', 18940.00);
INSERT INTO Vehicles VALUES ('2HKRW2H50LH000078', 23928050041, '2020', 'Blue', 24098.00);
INSERT INTO Vehicles VALUES ('4T1BK1FK7DU575708', 23928050081, '2022', 'White', 45250.00);
INSERT INTO Vehicles VALUES ('JHMC66041C075883', 23928050031, '2014', 'Blue', 24250.00);
INSERT INTO Vehicles VALUES ('5TEKU72N46Z285096', 23928050031, '2012', 'Grey', 24250.00);
INSERT INTO Vehicles VALUES ('4S2CK58W9Y4384883', 23928050031, '2022', 'Silver', 24250.00);
INSERT INTO Vehicles VALUES ('3C3CFFARXCT284597', 23928050031, '2015', 'Red', 24250.00);
INSERT INTO Vehicles VALUES ('5TDZA23C05S297412', 23928050031, '2019', 'Green', 24250.00);
INSERT INTO Vehicles VALUES ('5TDZT38A91S039603', 23928050031, '2007', 'Grey', 24250.00);

```

See Next Page

```

-- Acura Listings
INSERT INTO Vehicles VALUES ('1G11H5SL6EF119668', 23928140028, '2024', 'Silver', 36759.00);
INSERT INTO Vehicles VALUES ('1G1ZU64814F254875', 23928140029, '2014', 'Grey', 31249.00);
INSERT INTO VEHICLES VALUES ('19UNC1B01GY001234', 23928142005, '2016', 'White', 178898.00);

-- Porsche Listings
INSERT INTO Vehicles VALUES ('WP0AB2A91RS000001', 23928020003, '2024', 'Shark Blue',
254000.00);
INSERT INTO Vehicles VALUES ('WP0AA2A89RS200911', 23928020003, '2022', 'Shark Blue',
290092.00);
INSERT INTO Vehicles VALUES ('WP0AA2A89RS200001', 23928020003, '2023', 'Silver', 99879.89);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210022', 23928020718, '2018', 'White', 89995.00);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210023', 23928020718, '2017', 'White', 59991.00);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12345', 23928029711, '2020', 'Black', 65000.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12346', 23928029711, '2019', 'Blue', 49887.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12347', 23928029711, '2021', 'Orange', 52999.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12348', 23928029711, '2021', 'Silver', 52000.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12349', 23928029711, '2019', 'White', 61545.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12350', 23928029711, '2020', 'Black', 62755.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12351', 23928029711, '2021', 'Black', 74000.12);
INSERT INTO Vehicles VALUES ('WP1AA2A57LLB12352', 23928029711, '2022', 'Turquoise', 67099.12);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210024', 23928020718, '2017', 'White', 59999.00);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210025', 23928020718, '2019', 'Yellow', 62090.00);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210026', 23928020718, '2017', 'Gray', 52099.00);
INSERT INTO Vehicles VALUES ('WP0AA2A83JS210027', 23928020718, '2018', 'Shark Blue', 49998.00);

-- Volkswagen Listings
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123456', 23928070014, '2020', 'Gray', 23900.00);
INSERT INTO Vehicles VALUES ('1VWBT7A37NC987654', 23928070015, '2023', 'White', 42995.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123457', 23928070014, '2020', 'Gray', 26888.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123458', 23928070014, '2019', 'White', 29998.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123459', 23928070014, '2022', 'Gray', 22000.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123460', 23928070014, '2025', 'Purple', 27777.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123461', 23928070014, '2024', 'White', 27876.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123462', 23928070014, '2016', 'Green', 29897.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123463', 23928070014, '2020', 'Blue', 29800.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123464', 23928070014, '2023', 'Brown', 20999.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123465', 23928070014, '2025', 'White', 21999.00);
INSERT INTO Vehicles VALUES ('3VW2B7AJ5NM123466', 23928070014, '2022', 'Gray', 24564.00);

-- Audi Listings
INSERT INTO Vehicles VALUES ('WAUANAF43NA123456', 23928180033, '2022', 'Red', 43995.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654321', 23928180034, '2021', 'White', 76900.00);
INSERT INTO Vehicles VALUES ('WAUANAF43NA123555', 23928180033, '2024', 'Red', 43995.00);
INSERT INTO Vehicles VALUES ('WAUANAF43NA123457', 23928180033, '2025', 'Blue', 34995.00);
INSERT INTO Vehicles VALUES ('WAUANAF43NA123458', 23928180033, '2025', 'Yellow', 42365.00);
INSERT INTO Vehicles VALUES ('WAUANAF43NA123459', 23928180033, '2024', 'White', 49899.00);
INSERT INTO Vehicles VALUES ('WAUANAF43NA123460', 23928180033, '2023', 'Purple', 50000.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654322', 23928180034, '2021', 'White', 76900.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654323', 23928180034, '2022', 'White', 78999.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654324', 23928180034, '2021', 'White', 71777.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654325', 23928180034, '2023', 'White', 72767.00);
INSERT INTO Vehicles VALUES ('WA1AAFF77ND654326', 23928180034, '2025', 'White', 77000.00);

```

```

-- BMW Listings
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67890', 23928110088, '2019', 'Blue', 75090.00);
INSERT INTO Vehicles VALUES('WBA5R1C03LFN23456', 23928110022, '2020', 'Blue', 42999.00);
INSERT INTO Vehicles VALUES('WBY1Z4C59DVM12345', 23928110023, '2013', 'White', 32999.00);
INSERT INTO Vehicles VALUES('WBA3T3C50EJ876871', 23928110024, '2018', 'Red', 32100.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67891', 23928110088, '2019', 'Blue', 75090.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67892', 23928110088, '2017', 'Black', 75090.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67893', 23928110088, '2018', 'Gold', 75090.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67894', 23928110088, '2015', 'Blue', 74535.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67895', 23928110088, '2016', 'Gray', 72888.00);
INSERT INTO Vehicles VALUES('WBY2Z2C51KVB67896', 23928110088, '2019', 'Silver', 77090.00);

-- Unscrupulous Manufacturer Listings
INSERT INTO Vehicles VALUES('9702DC6409702DC64', 23928770126, '2045', 'Red', 22000.00);
INSERT INTO Vehicles VALUES('9702DC6409702DC46', 23928770400, '2060', 'Red/Black', 30000.00);
INSERT INTO Vehicles VALUES('BEAMNGIBISHUPIGEO', 23928240055, '1985', 'Silver', 3000.00);

-- Creating Transaction Entities

INSERT INTO Transactions VALUES(2392000001, '5FNYF3H55EB026654', 28341721613, 28341721512,
148597.24);
INSERT INTO Transactions VALUES(2392000002, 'WP0AA2A89RS200001', 28341721614, 28341721501,
92991.00);
INSERT INTO Transactions VALUES(2392000003, '1G1ZU64814F254875', 28341721612, 28341721502,
42336.00);
INSERT INTO Transactions VALUES(2392000004, '2HKRW2H50LH000078', 28341721608, 28341721508,
27989.00);
INSERT INTO Transactions VALUES(2392000005, 'WAUANAF43NA123456', 28341721615, 28341721502,
48099.00);
INSERT INTO Transactions VALUES(2392000006, '1HGCR2F9XFA879984', 28341721618, 28341721512,
31000.00);
INSERT INTO Transactions VALUES(2392000007, 'WP0AA2A83JS210023', 28341721617, 28341721508,
65000.00);
INSERT INTO Transactions VALUES(2392000008, '5TEKU72N46Z285096', 28341721619, 28341721502,
31930.00);
INSERT INTO Transactions VALUES(2392000009, '5TDZT38A91S039603', 28341721616, 28341721508,
416891.00);
INSERT INTO Transactions VALUES(2392000010, 'WBA3T3C50EJ876871', 28341721618, 28341721512,
28959.75);
INSERT INTO Transactions VALUES(2392000011, '1G11H5SL6EF119668', 28341721605, 28341721501,
31247.99);
INSERT INTO Transactions VALUES(2392000013, '19UNC1B01GY001234', 28341721604, 28341721501,
125000.00);
INSERT INTO Transactions VALUES(2392000014, 'WBY2Z2C51KVB67890', 28341721613, 28341721512,
78000.00);
INSERT INTO Transactions VALUES(2392000015, 'WA1AAFF77ND654326', 28341721615, 28341721501,
80999.00);
INSERT INTO Transactions VALUES(2392000017, 'WP1AA2A57LLB12352', 28341721608, 28341721508,
68000.00);
INSERT INTO Transactions VALUES(2392000018, '1HGCV1F14JA000001', 28341721610, 28341721502,
19020.00);

```

See Next Page

```
INSERT INTO Transactions VALUES (2392000019, 'WBY2Z2C51KVB67895', 28341721610, 28341721512,
80000.00);
INSERT INTO Transactions VALUES (2392000020, 'WBY1Z4C59DVM12345', 28341721615, 28341721508,
31999.00);
INSERT INTO Transactions VALUES (2392000021, '3VW2B7AJ5NM123463', 28341721604, 28341721502,
28000.00);
INSERT INTO Transactions VALUES (2392000022, 'WP0AA2A89RS200911', 28341721621, 28341721508,
300000.00);
INSERT INTO Transactions VALUES (2392000023, 'WP1AA2A57LLB12349', 28341721611, 28341721512,
62844.00);
INSERT INTO Transactions VALUES (2392000024, '3VW2B7AJ5NM123460', 28341721606, 28341721501,
22222.00);
INSERT INTO Transactions VALUES (2392000025, 'JTHKD5BH7B2061851', 28341721622, 28341721501,
51249.00);
INSERT INTO Transactions VALUES (2392000026, '4S2CK58W9Y4384883', 28341721610, 28341721508,
19009.90);
INSERT INTO Transactions VALUES (2392000027, 'WAUANAF43NA123458', 28341721609, 28341721502,
49495.00);
INSERT INTO Transactions VALUES (2392000028, 'WBY2Z2C51KVB67892', 28341721621, 28341721512,
76090.00);
INSERT INTO Transactions VALUES (2392000029, '3VW2B7AJ5NM123466', 28341721604, 28341721508,
26090.00);
INSERT INTO Transactions VALUES (2392000031, 'WA1AAFF77ND654323', 28341721617, 28341721508,
80000.00);
INSERT INTO Transactions VALUES (2392000032, 'JTHKD5BH7B2061848', 28341721601, 28341721502,
12489.00);
INSERT INTO Transactions VALUES (2392000033, 'WP1AA2A57LLB12347', 28341721602, 28341721508,
52999.12);
INSERT INTO Transactions VALUES (2392000034, '1VWBT7A37NC987654', 28341721603, 28341721512,
42995.00);
INSERT INTO Transactions VALUES (2392000035, 'WBA5R1C03LFN23456', 28341721620, 28341721501,
42999.00);
INSERT INTO Transactions VALUES (2392000036, '9702DC6409702DC64', 28341721618, 28341721512,
22000.75);
```

See Next Page



## Testing and Validation Queries

-- Queries

```
SELECT * FROM VehicleInfo ORDER BY Color;
SELECT * FROM Inventory;
SELECT * FROM TransactionDetails;
SELECT * FROM VehicleInfo WHERE Model LIKE '%Audi%';
SELECT * FROM Inventory WHERE Model LIKE '%Honda%';
SELECT * FROM TransactionDetails WHERE Model LIKE '%BMW%';
SELECT * FROM VehicleInfo WHERE Model LIKE '%Lucid%';
SELECT * FROM Inventory WHERE Model LIKE '%Lucid%';
SELECT * FROM TransactionDetails WHERE Model LIKE '%Lucid%';
SELECT * FROM VehicleInfo WHERE Model LIKE '%Macan%';
SELECT * FROM Inventory WHERE Model LIKE '%Macan%';
SELECT * FROM TransactionDetails WHERE Model LIKE '%Macan%';
SELECT * FROM TransactionDetails WHERE "Customer Name" LIKE '%Alex%';
SELECT * FROM TransactionDetails WHERE "Customer Name" LIKE '%Alex%' AND COLOR LIKE
'Red';
SELECT * FROM TransactionDetails WHERE "Customer Name" LIKE '%Richard%';
SELECT Salesperson, COUNT(*) AS Sales FROM TransactionDetails GROUP BY Salesperson
ORDER BY Sales DESC;
SELECT Model, COUNT(*) AS "In Stock" FROM Inventory GROUP BY Model ORDER BY "In Stock"
DESC;
SELECT VehicleInfo.Model, COUNT(Inventory.Model) AS "Stock" FROM VehicleInfo LEFT JOIN
Inventory ON VehicleInfo.VIN = Inventory.VIN GROUP BY VehicleInfo.Model ORDER BY
"Stock" DESC;
SELECT Model, COUNT(*) AS Sold FROM TransactionDetails GROUP BY Model ORDER BY Sold
DESC;
```

See Next Page

---

## Display All Vehicles

Queries VehicleInfo view

SELECT \* FROM VehicleInfo ORDER BY Color;

Download ▾ Execution time: 0.003 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
WP1AA2A57LLB123	Porsche Macan	2020	Black	62755.12
WBY2Z2C51KVB678	BMW i8	2017	Black	75090
WP1AA2A57LLB123	Porsche Macan	2021	Black	74000.12
WP1AA2A57LLB123	Porsche Macan	2020	Black	65000.12
JHMCG66041C0758	Honda Civic	2014	Blue	24250
WBY2Z2C51KVB678	BMW i8	2019	Blue	75090
WBA5R1C03LFN234	BMW 3 Series	2020	Blue	42999
WBY2Z2C51KVB678	BMW i8	2019	Blue	75090
WAUANAF43NA123	Audi A4	2025	Blue	34995
WP1AA2A57LLB123	Porsche Macan	2019	Blue	49887.12
3VW2B7AJ5NM123	Volkswagen Golf	2020	Blue	29800
2HKRW2H50LH000	Honda CR-V	2020	Blue	24098
1HGCV1F14JA0000	Honda Accord	2018	Blue	18940
5FNYP3H55EB0266	Lucid Gravity	2024	Blue	154090
5FNYP3H55EB0266	Lucid Gravity	2024	Blue	15000

+Plus additional rows

---

See Next Page

## Display all unsold vehicles currently on the lot, in inventory.

Queries Inventory view

SELECT \* FROM Inventory;

Download Execution time: 0.012 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
JTHKD5BH7B20618	Lucid Air	2024	Brown	45909
JTHKD5BH7B20618	Lucid Air	2024	White	52097
5FNYP3H55EB0266!	Lucid Gravity	2024	Blue	154090
4T1BK1FK7DU5757!	Honda e	2022	White	45250
JHMCG66041C0758	Honda Civic	2014	Blue	24250
3C3CFFARXCT2845!	Honda Civic	2015	Red	24250
5TDZA23C05S2974!	Honda Civic	2019	Green	24250
WPOAB2A91RS0000	Porsche 911	2024	Shark Blue	254000
WP0AA2A83JS2100	Porsche 718 Cayman	2018	White	89995
WP1AA2A57LLB123	Porsche Macan	2020	Black	65000.12
WP1AA2A57LLB123	Porsche Macan	2019	Blue	49887.12
WP1AA2A57LLB123	Porsche Macan	2021	Silver	52000.12
WP1AA2A57LLB123	Porsche Macan	2020	Black	62755.12
WP1AA2A57LLB123	Porsche Macan	2021	Black	74000.12
WP0AA2A83JS2100	Porsche 718 Cayman	2017	White	50000

+Plus additional rows

See Next Page

## Display all transactions (sold cars)

Queries TransactionDetails view

```
SELECT * FROM TransactionDetails;
```

Download ▾ Execution time: 0.003 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000032	James Wilson	2024	JTHKD5BH7B20618	Lucid Air	Red	12489	Sarah Johnson
2392000001	Richard Jackson	2024	5FNYF3H55EB02661	Lucid Gravity	Blue	148597.24	Amanda Clark
2392000025	Mint Marion	2024	JTHKD5BH7B20618	Lucid Air	Green	51249	John Carter
2392000006	Alex Woloszyk	2024	1HGCR2F9XFA87991	Honda e	Red	31000	Amanda Clark
2392000018	Elizabeth Taylor	2018	1HGCV1F14JA00001	Honda Accord	Blue	19020	Sarah Johnson
2392000004	Linda Wilson	2020	2HKRW2H50LH0001	Honda CR-V	Blue	27989	Jessica Martinez
2392000008	Simon Ocsenas	2012	5TEKU72N46Z28501	Honda Civic	Grey	31930	Sarah Johnson
2392000026	Elizabeth Taylor	2022	4S2CK58W9Y43848	Honda Civic	Silver	19009.9	Jessica Martinez
2392000009	Yvette	2007	5TDZT38A91S03961	Honda Civic	Grey	416891	Jessica Martinez
2392000011	John Brown	2024	1G11H5SL6EF11961	Acura MDX	Silver	31247.99	John Carter
2392000003	Barbara Thomas	2014	1G1ZU64814F25481	Acura TLX	Grey	42336	Sarah Johnson
2392000013	Patricia Williams	2016	19UNC1B01GY0012	Acura NSX	White	125000	John Carter
2392000022	Charles Marc Hervé F	2022	WP0AA2A89RS2009	Porsche 911	Shark Blue	300000	Jessica Martinez
2392000002	Susan White	2023	WP0AA2A89RS200C	Porsche 911	Silver	92991	John Carter
2392000007	Aiden Baber Cruise	2017	WP0AA2A831S2100	Porsche 718 Cayman	White	65000	Jessica Martinez

+Plus additional rows

## Display Audi vehicles ever inventoried (Sold and unsold)

```
SELECT * FROM VehicleInfo WHERE Model LIKE '%Audi%';
```

Download ▾ Execution time: 0.007 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
WAUANAF43NA1231	Audi A4	2022	Red	43995
WA1AAFF77ND6543	Audi e-tron	2021	White	76900
WAUANAF43NA1231	Audi A4	2024	Red	43995
WAUANAF43NA1231	Audi A4	2025	Blue	34995
WAUANAF43NA1231	Audi A4	2025	Yellow	42365
WAUANAF43NA1231	Audi A4	2024	White	49899
WAUANAF43NA1231	Audi A4	2023	Purple	50000
WA1AAFF77ND6543	Audi e-tron	2021	White	76900
WA1AAFF77ND6543	Audi e-tron	2022	White	78999
WA1AAFF77ND6543	Audi e-tron	2021	White	71777
WA1AAFF77ND6543	Audi e-tron	2023	White	72767
WA1AAFF77ND6543	Audi e-tron	2025	White	77000

See Next Page

## Display unsold Honda models in inventory

```
SELECT * FROM Inventory WHERE Model LIKE '%Honda%';
```

Download Execution time: 0.009 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
4T1BK1FK7DU57571	Honda e	2022	White	45250
JHMCG66041C0758	Honda Civic	2014	Blue	24250
3C3CFFARXCT28459	Honda Civic	2015	Red	24250
5TDZA23C05S2974	Honda Civic	2019	Green	24250

## Display transactions selling a BMW model

```
SELECT * FROM TransactionDetails WHERE Model LIKE '%BMW%';
```

Download Execution time: 0.023 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000014	Richard Jackson	2019	WBY2Z2C51KVB678	BMW i8	Blue	78000	Amanda Clark
2392000035	Christian Chapman	2020	WBA5R1C03LFN234	BMW 3 Series	Blue	42999	John Carter
2392000020	Thomas Alexander	2013	WBY1Z4C59DVM12	BMW i4	White	31999	Jessica Martinez
2392000010	Alex Woloszyk	2018	WBA3T3C50EJ8768	BMW i3	Red	28959.75	Amanda Clark
2392000028	Charles Marc Hervé F	2017	WBY2Z2C51KVB678	BMW i8	Black	76090	Amanda Clark
2392000019	Elizabeth Taylor	2016	WBY2Z2C51KVB678	BMW i8	Gray	80000	Amanda Clark

See Next Page

## Set of queries showing all vehicles, inventory vehicles, and sold vehicles for the manufacturer Lucid

`SELECT * FROM VehicleInfo WHERE Model LIKE '%Lucid%';`

Download ▾ Execution time: 0.007 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
JTHKD5BH7B20618	Lucid Air	2024	Red	12489
5FNYP3H55EB0266!	Lucid Gravity	2024	Blue	15900
JTHKD5BH7B20618	Lucid Air	2024	Brown	45909
JTHKD5BH7B20618	Lucid Air	2024	White	52097
JTHKD5BH7B20618	Lucid Air	2024	Green	49888
5FNYP3H55EB0266!	Lucid Gravity	2024	Blue	154090

`SELECT * FROM Inventory WHERE Model LIKE '%Lucid%';`

Download ▾ Execution time: 0.009 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
JTHKD5BH7B20618	Lucid Air	2024	Brown	45909
JTHKD5BH7B20618	Lucid Air	2024	White	52097
5FNYP3H55EB0266!	Lucid Gravity	2024	Blue	154090

`SELECT * FROM TransactionDetails WHERE Model LIKE '%Lucid%';`

Download ▾ Execution time: 0.014 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000032	James Wilson	2024	JTHKD5BH7B20618	Lucid Air	Red	12489	Sarah Johnson
2392000001	Richard Jackson	2024	5FNYP3H55EB0266!	Lucid Gravity	Blue	148597.24	Amanda Clark
2392000025	Mint Marion	2024	JTHKD5BH7B20618	Lucid Air	Green	51249	John Carter

## Set of queries showing all vehicles, inventory vehicles, and sold vehicles for the Macan model

`SELECT * FROM VehicleInfo WHERE Model LIKE '%Macan%';`

Download ▾ Execution time: 0.007 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
WP1AA2A57LLB123	Porsche Macan	2020	Black	65000.12
WP1AA2A57LLB123	Porsche Macan	2019	Blue	49887.12
WP1AA2A57LLB123	Porsche Macan	2021	Orange	52999.12
WP1AA2A57LLB123	Porsche Macan	2021	Silver	52000.12
WP1AA2A57LLB123	Porsche Macan	2019	White	61545.12
WP1AA2A57LLB123	Porsche Macan	2020	Black	62755.12
WP1AA2A57LLB123	Porsche Macan	2021	Black	74000.12
WP1AA2A57LLB123	Porsche Macan	2022	Turquoise	67099.12

`SELECT * FROM Inventory WHERE Model LIKE '%Macan%';`

Download ▾ Execution time: 0.002 seconds

VIN	MODEL	MODEL YEAR	COLOR	PRICE
WP1AA2A57LLB123	Porsche Macan	2020	Black	65000.12
WP1AA2A57LLB123	Porsche Macan	2019	Blue	49887.12
WP1AA2A57LLB123	Porsche Macan	2021	Silver	52000.12
WP1AA2A57LLB123	Porsche Macan	2020	Black	62755.12
WP1AA2A57LLB123	Porsche Macan	2021	Black	74000.12

`SELECT * FROM TransactionDetails WHERE Model LIKE '%Macan%';`

Download ▾ Execution time: 0.014 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000033	Mary Johnson	2021	WP1AA2A57LLB123	Porsche Macan	Orange	52999.12	Jessica Martinez
2392000023	David Anderson	2019	WP1AA2A57LLB123	Porsche Macan	White	62844	Amanda Clark
2392000017	Linda Wilson	2022	WP1AA2A57LLB123	Porsche Macan	Turquoise	68000	Jessica Martinez

See Next Page

## Display all transaction information from customers with 'Alex' anywhere in their name

```
SELECT * FROM TransactionDetails WHERE "Customer Name" LIKE '%Alex%';
```

Download ▾ Execution time: 0.002 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000005	Thomas Alexander	2022	WUJANAF43NA1234	Audi A4	Red	48099	Sarah Johnson
2392000006	Alex Woloszyk	2024	1HGCR2F9XFA87991	Honda e	Red	31000	Amanda Clark
2392000010	Alex Woloszyk	2018	WBA3T3C50EJ8768	BMW i3	Red	28959.75	Amanda Clark
2392000015	Thomas Alexander	2025	WA1A AFF77ND65432	Audi e-tron	White	80999	John Carter
2392000020	Thomas Alexander	2013	WBY1Z4C59DVM123	BMW i4	White	31999	Jessica Martinez
2392000036	Alex Woloszyk	2045	9702DC6409702DC1	Makigai MaiMai	Red	22000.75	Amanda Clark

## Display all transaction information from customers with 'Alex' anywhere in their name and the color is red

```
SELECT * FROM TransactionDetails
WHERE "Customer Name" LIKE '%Alex%'
AND COLOR LIKE 'Red';
```

Download ▾ Execution time: 0.017 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000005	Thomas Alexander	2022	WUJANAF43NA1234	Audi A4	Red	48099	Sarah Johnson
2392000006	Alex Woloszyk	2024	1HGCR2F9XFA87991	Honda e	Red	31000	Amanda Clark
2392000010	Alex Woloszyk	2018	WBA3T3C50EJ8768	BMW i3	Red	28959.75	Amanda Clark
2392000036	Alex Woloszyk	2045	9702DC6409702DC1	Makigai MaiMai	Red	22000.75	Amanda Clark

## Display all transaction information from customer Richard

```
SELECT * FROM TransactionDetails WHERE "Customer Name" LIKE '%Richard%';
```

Download ▾ Execution time: 0.013 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000001	Richard Jackson	2024	5FNYF3H55EB02661	Lucid Gravity	Blue	148597.24	Amanda Clark
2392000014	Richard Jackson	2019	WBY2Z2C51KVB678	BMW i8	Blue	78000	Amanda Clark

---

## Display all sales made by Amanda Clark

```
SELECT * FROM TransactionDetails WHERE Salesperson LIKE '%Amanda Clark%';
```

Download ▾ Execution time: 0.019 seconds

TRANSACTIONID	CUSTOMER NAME	MODEL YEAR	VIN	MODEL	COLOR	SALE PRICE	SALESPERSON
2392000001	Richard Jackson	2024	5FNYP3H55EB02661	Lucid Gravity	Blue	148597.24	Amanda Clark
2392000006	Alex Woloszyk	2024	1HGCR2F9XFA87991	Honda e	Red	31000	Amanda Clark
2392000023	David Anderson	2019	WP1AA2A57LLB123	Porsche Macan	White	62844	Amanda Clark
2392000034	Robert Smith	2023	1VWBT7A37NC9876	Volkswagen ID.4	White	42995	Amanda Clark
2392000010	Alex Woloszyk	2018	WBA3T3C50EJ8768	BMW i3	Red	28959.75	Amanda Clark
2392000014	Richard Jackson	2019	WBY2Z2C51KVB678	BMW i8	Blue	78000	Amanda Clark
2392000028	Charles Marc Hervé F	2017	WBY2Z2C51KVB678	BMW i8	Black	76090	Amanda Clark
2392000019	Elizabeth Taylor	2016	WBY2Z2C51KVB678	BMW i8	Gray	80000	Amanda Clark
2392000036	Alex Woloszyk	2045	9702DC6409702DC	Makigai MaiMai	Red	22000.75	Amanda Clark

---

## Display number of sales made by each salesperson in descending order

```
SELECT Salesperson, COUNT(*) AS Sales  
FROM TransactionDetails  
GROUP BY Salesperson  
ORDER BY Sales DESC;
```

Download ▾ Execution time: 0.021 seconds

SALESPERSON	SALES
Jessica Martinez	10
Amanda Clark	9
Sarah Johnson	7
John Carter	7

---

## Display current stock by model

```
SELECT Model, COUNT(*) AS "In Stock"  
FROM Inventory  
GROUP BY Model  
ORDER BY "In Stock" DESC;
```

Download ▼ Execution time: 0.01 seconds

MODEL	IN STOCK
Volkswagen Golf	8
Porsche Macan	5
Porsche 718 Cayman	5
BMW i8	4
Audi A4	4
Audi e-tron	4
Honda Civic	3
Lucid Air	2
ibishu Pigeon	1
Makigai Tanishi	1
Porsche 911	1
Honda e	1
Lucid Gravity	1

---

## Display the number of time every vehicle has been inventoried

```
SELECT VehicleInfo.Model, COUNT(Inventory.Model) AS "Stock"  
FROM VehicleInfo  
LEFT JOIN Inventory ON VehicleInfo.VIN = Inventory.VIN  
GROUP BY VehicleInfo.Model  
ORDER BY "Stock" DESC;
```

Download ▾ Execution time: 0.017 seconds

MODEL	STOCK
Volkswagen Golf	8
Porsche 718 Cayman	5
Porsche Macan	5
BMW i8	4
Audi e-tron	4
Audi A4	4
Honda Civic	3
Lucid Air	2
Porsche 911	1
Honda e	1
ibishu Pigeon	1
Lucid Gravity	1
Makigai Tanishi	1
Volkswagen ID.4	0
Acura MDX	0
Honda CR-V	0
Honda Accord	0
Acura NSX	0
BMW i4	0
BMW i3	0
Makigai MaiMai	0
Acura TLX	0
BMW 3 Series	0

---

See Next Page

## Display how many times a model has been sold

```
SELECT Model, COUNT(*) AS Sold FROM TransactionDetails
GROUP BY Model
ORDER BY Sold DESC;
```

Download ▾ Execution time: 0.003 seconds

MODEL	SOLD
Porsche Macan	3
Honda Civic	3
BMW i8	3
Volkswagen Golf	3
Porsche 911	2
Audi e-tron	2
Audi A4	2
Lucid Air	2
Volkswagen ID.4	1
BMW 3 Series	1
BMW i4	1
BMW i3	1
Porsche 718 Cayman	1
Acura NSX	1
Acura TLX	1
Acura MDX	1
Honda CR-V	1
Honda Accord	1
Honda e	1
Makigai MaiMai	1
Lucid Gravity	1

---

See Next Page

## **Summary**

The summary section marks the conclusion of our database design project. With this project, we have demonstrated our understanding of database system concepts, and how they may be utilized in the real world. In our case, we focused specifically on transactional and business management systems. We've covered concepts such as normalization, primary and foreign keys, joins, and the various design flows, just to name a few, and have applied them to a system not unlike one that a business (such as a car dealership) would use.

One of the initial challenges we faced was how we were going to collaborate on the SQL queries. Eventually, we discovered that Lucid Charts allowed for code collaboration via code blocks. Which led us to our second, and slightly more tedious challenge of properly entering valid data. This was slightly more complex once we got to the transactional entries as we needed to be very careful about not having duplicate vin numbers listed.

It was definitely fun being able to add in little easter eggs into our database, and I firmly believe this project strongly helped us to revisit and reinforce the knowledge that we have gained throughout this class.