SQL Case Study- Final Project

Problem Statement

- A lot of people in the world share a common desire: to own a vehicle. A car or an automobile is seen as an object that gives the freedom of mobility. Many are now preferring pre-owned vehicles because they come at an affordable cost, but at the same time, they are also concerned about whether the after-sales service provided by the resale vendors is as good as the care you may get from the actual manufacturers. New-Wheels, a vehicle resale company, has launched an app with an end-to-end service from listing the vehicle on the platform to shipping it to the customer's location. This app also captures the overall after-sales feedback given by the customer.
- New-Wheels sales have been dipping steadily in the past year, and due to the critical customer feedback and ratings online, there has been a drop in new customers every quarter, which is concerning to the business. The CEO of the company now wants a quarterly report with all the key metrics sent to him so he can assess the health of the business and make the necessary decisions.

Objective:

- As a data scientist, you see that there is an array of questions that are being asked at the leadership level that needs to be answered using data. Import the dump file that contains various tables that are present in the database. Use the data to answer the questions posed and create a quarterly business report for the CEO.

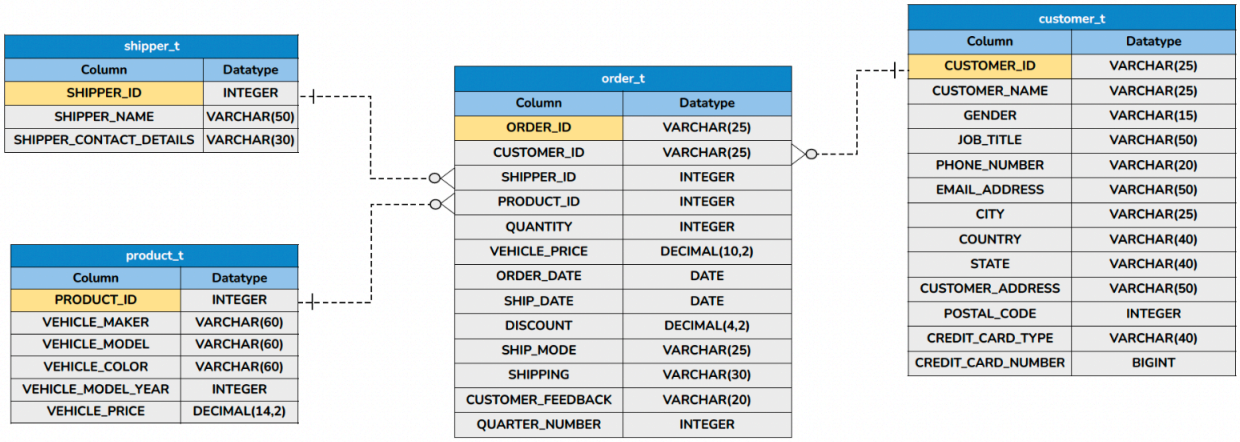
Data Description:

- You have data on the vehicles you sell: what is the make, model, and year? What is the price point? Data on your customers, such as where they live and payment methods, data on orders and shipments, such as when the order was shipped and received, what the after-sales feedback was, and so on.

Description

Database Schema

Entity-Relationship Diagram



Data Dictionary:

shipper_id: Unique ID of the Shipper
shipper_name: Name of the Shipper
shipper_contact_details: Contact detail of the Shipper
product_id: Unique ID of the Product
vehicle_maker: Vehicle Manufacturing company name
vehicle_model: Vehicle model name
vehicle_color: Color of the Vehicle
vehicle_model_year: Year of Manufacturing
vehicle_price: Price of the Vehicle
quantity: Ordered Quantity
customer_id: Unique ID of the customer
customer_name: Name of the customer
gender: Gender of the customer
job_title: Job Title of the customer
phone_number: Contact detail of the customer
email_address: Email address of the customer
city: Residing city of the customer
country: Residing country of the customer

state: Residing state of the customer
customer_address: Address of the customer
order_date: Date on which customer ordered the vehicle
order_id: Unique ID of the order
ship_date: Shipment Date
ship_mode: Shipping Mode/Class
shipping: Shipping Ways
postal_code: Postal Code of the customer
discount: Discount given to the customer for the particular order by credit card in percentage
credit_card_type: Credit Card Type
credit_card_number: Credit card number
customer_feedback: Feedback of the customer
quarter_number : Quarter Number

Dataset link

🗀 New wheels

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Guidelines

/*-- QUESTIONS RELATED TO CUSTOMERS
[Q1] What is the distribution of customers across states?
Hint: For each state, count the number of customers.*/

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/* [Q2] What is the average rating in each quarter?
-- Very Bad is 1, Bad is 2, Okay is 3, Good is 4, Very Good is 5.

Hint: Use a common table expression and in that CTE, assign numbers to the different customer ratings. Now average the feedback for each quarter.

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/* [Q3] Are customers getting more dissatisfied over time?

Hint: Need the percentage of different types of customer feedback in each quarter. Use a common table expression and
determine the number of customer feedback in each category as well as the total number of customer feedback in each quarter.
Now use that common table expression to find out the percentage of different types of customer feedback in each quarter.
Eg: (total number of very good feedback/total customer feedback)* 100 gives you the percentage of very good feedback.

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/*[Q4] Which are the top 5 vehicle makers preferred by the customer.

Hint: For each vehicle make what is the count of the customers.*/

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/*[Q5] What is the most preferred vehicle make in each state?

Hint: Use the window function RANK() to rank based on the count of customers for each state and vehicle maker.
After ranking, take the vehicle maker whose rank is 1.*/

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/*QUESTIONS RELATED TO REVENUE and ORDERS

-- [Q6] What is the trend of the number of orders by quarters?

Hint: Count the number of orders for each quarter.*/

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/* [Q7] What is the quarter over quarter % change in revenue?

Hint: Quarter over Quarter percentage change in revenue means what is the change in revenue from the subsequent quarter to the previous quarter in percentage.
    To calculate you need to use the common table expression to find out the sum of revenue for each quarter. Revenue = Quantity*(Price-Price*discount)
    Then use that CTE along with the LAG function to calculate the QoQ percentage change in revenue.
*/

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/* [Q8] What is the trend of revenue and orders by quarters?

Hint: Find out the sum of revenue and count the number of orders for each quarter.*/ Revenue = Quantity*(Price-Price*discount)

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/* QUESTIONS RELATED TO SHIPPING
   [Q9] What is the average discount offered for different types of credit cards?

Hint: Find out the average of discount for each credit card type.*/

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/* [Q10] What is the average time taken to ship the placed orders for each quarters?
	Hint: Use the dateiff function to find the difference between the ship date and the order date.
*/