

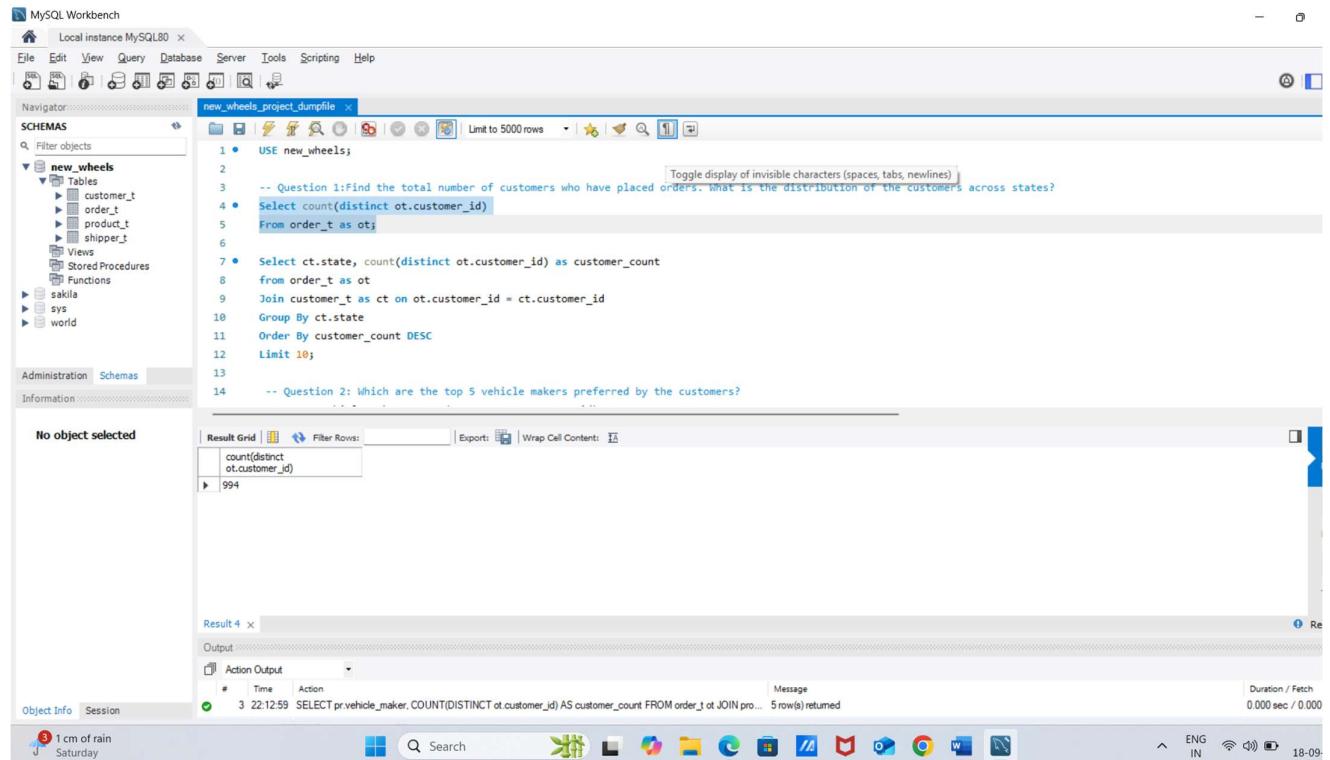
Business Questions

Question 1: Find the total number of customers who have placed orders. What is the distribution of the customers across states?

Solution Query:

```
Select count(distinct ot.customer_id)  
From order_t as ot;  
  
Select ct.state, count(distinct ot.customer_id) as customer_count  
from order_t as ot  
  
Join customer_t as ct on ot.customer_id = ct.customer_id  
  
Group By ct.state  
  
Order By customer_count DESC  
  
Limit 10;
```

Output:



The screenshot shows the MySQL Workbench interface. The query editor window contains the solution query for Question 1. The results grid shows the output of the query, which is a single row with the value 994. The status bar at the bottom right indicates the duration of 0.000 sec / 0.000.

```
-- Question 1:Find the total number of customers who have placed orders. What is the distribution of the customers across states?  
Select count(distinct ot.customer_id)  
From order_t as ot;  
  
Select ct.state, count(distinct ot.customer_id) as customer_count  
from order_t as ot  
  
Join customer_t as ct on ot.customer_id = ct.customer_id  
Group By ct.state  
Order By customer_count DESC  
Limit 10;  
  
-- Question 2: Which are the top 5 vehicle makers preferred by the customers?
```

count(distinct ot.customer_id)
994

Result 4 x

Action Output

Time Action Message Duration / Fetch
3 22:12:59 SELECT pr.vehicle_maker, COUNT(DISTINCT ot.customer_id) AS customer_count FROM order_t ot JOIN pro... 5 row(s) returned 0.000 sec / 0.000

Object Info Session

3 1 cm of rain Saturday

Search

ENG IN 18:09

The screenshot shows the MySQL Workbench interface. The top bar has tabs for 'MySQL Workbench' and 'Local instance MySQL80'. The menu includes 'Edit', 'View', 'Query', 'Database', 'Server', 'Tools', 'Scripting', and 'Help'. The 'Navigator' pane on the left shows the 'Schemas' section with 'new_wheels' selected, containing tables like 'customer_t', 'order_t', 'product_t', and 'shipper_t'. Below it are 'Views', 'Stored Procedures', and 'Functions'. Other schemas listed are 'sakila', 'sys', and 'world'. The main area is titled 'new_wheels_project_dumpfile' and contains a query editor with the following code:

```

1 • USE new_wheels;
2
3 -- Question 1:Find the total number of customers who have placed orders. What is the distribution of the customers across states?
4 • Select count(DISTINCT ot.customer_id)
5 From order_t AS ot;
6
7 • Select ct.state, count(DISTINCT ot.customer_id) AS customer_count
8 From order_t AS ot
9 Join customer_t AS ct ON ot.customer_id = ct.customer_id
10 Group BY ct.state
11 Order BY customer_count DESC
12
13
14 -- Question 2: Which are the top 5 vehicle makers preferred by the customers?

```

The results grid below the query editor shows the distribution of customers across states:

state	customer_count
California	97
Texas	97
Florida	86
New York	69
District of Columbia	35
Colorado	33
Ohio	33
Alabama	29
Washington	28
Arizona	26

The status bar at the bottom indicates 'Object Info' is selected, and the system status shows 'ENG IN'.

Observations and Insights:

- There are total 994 Unique Customers in the New Wheels Data Base who have made at least 1 Purchase.
- States with Highest Number of Customers to Purchase Vehicles are from California and Texas having 97 Customers each. Florida comes next with 86 Customers and New York after it with 69 Customers.
- Arizona has the least customer base of 26 Customers above it is Washington with 28 Customers and Alabama with 29 Customers. These 3 States are at bottom of the Table.

Question 2: Which are the top 5 vehicle makers preferred by the customers?

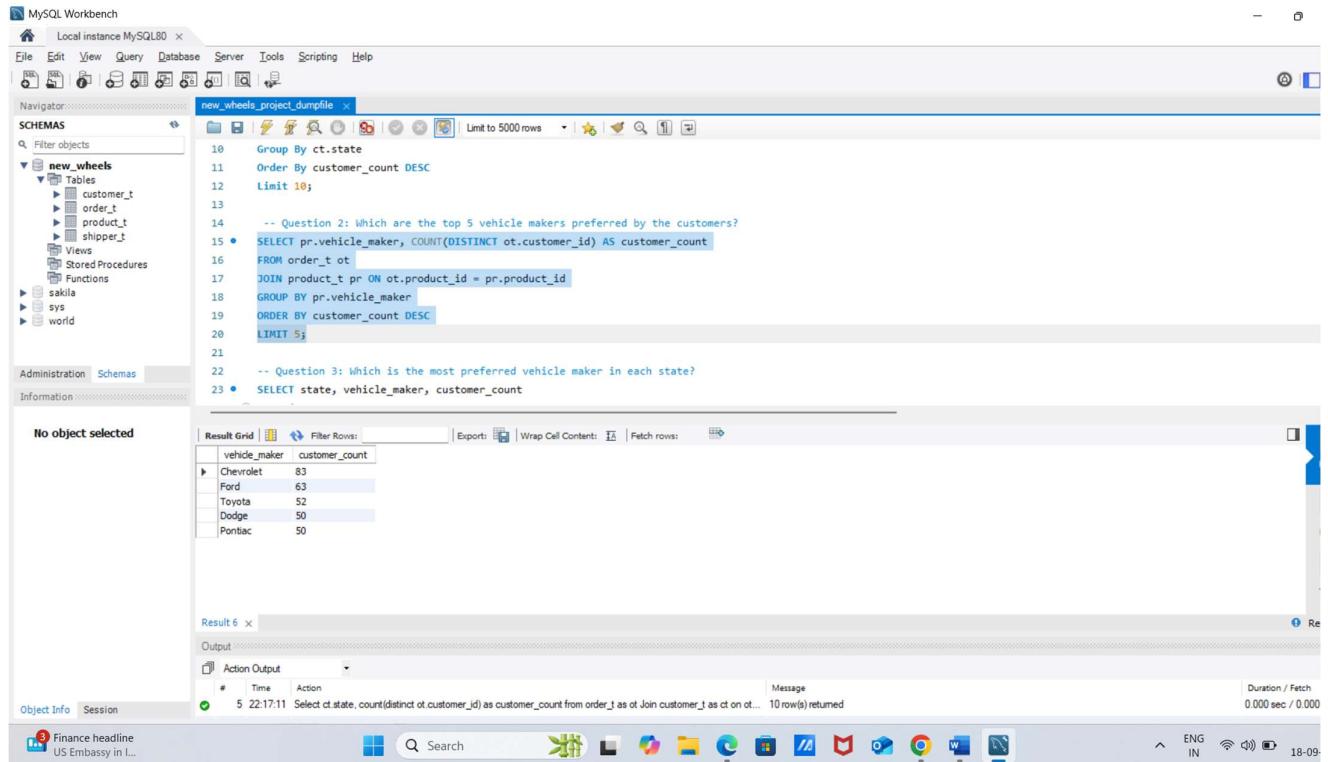
Solution Query:

```

SELECT pr.vehicle_maker, COUNT(DISTINCT ot.customer_id) AS customer_count
FROM order_t ot
JOIN product_t pr ON ot.product_id = pr.product_id
GROUP BY pr.vehicle_maker
ORDER BY customer_count DESC
LIMIT 5;

```

Output:



The screenshot shows the MySQL Workbench interface with a query editor and a results grid. The query is as follows:

```
10     Group By ct.state
11     Order By customer_count DESC
12     Limit 10;
13
14     -- Question 2: Which are the top 5 vehicle makers preferred by the customers?
15 •   SELECT pr.vehicle_maker, COUNT(DISTINCT ot.customer_id) AS customer_count
16     FROM order_t ot
17     JOIN product_t pr ON ot.product_id = pr.product_id
18     GROUP BY pr.vehicle_maker
19     ORDER BY customer_count DESC
20     LIMIT 5;
21
22     -- Question 3: Which is the most preferred vehicle maker in each state?
23 •   SELECT state, vehicle_maker, customer_count
```

The results grid displays the following data:

vehicle_maker	customer_count
Chevrolet	83
Ford	63
Toyota	52
Dodge	50
Pontiac	50

Observations and Insights:

- Chevrolet is the most preferred Used Car Brands by the Customers. Total 83 Customers have made purchase of Chevrolet Brands Car.
- Ford comes in second place with total 63 Customers.
- At third Toyota has 52 Customers followed by Dodge and Pontiac with 50 Customers each.
- These 5 Brands alone constitute to almost 30% of the Business of New Wheels across different states.

Question 3: Which is the most preferred vehicle maker in each state?

Solution Query:

```
SELECT state, vehicle_maker, customer_count
FROM (
    SELECT c.state,
```

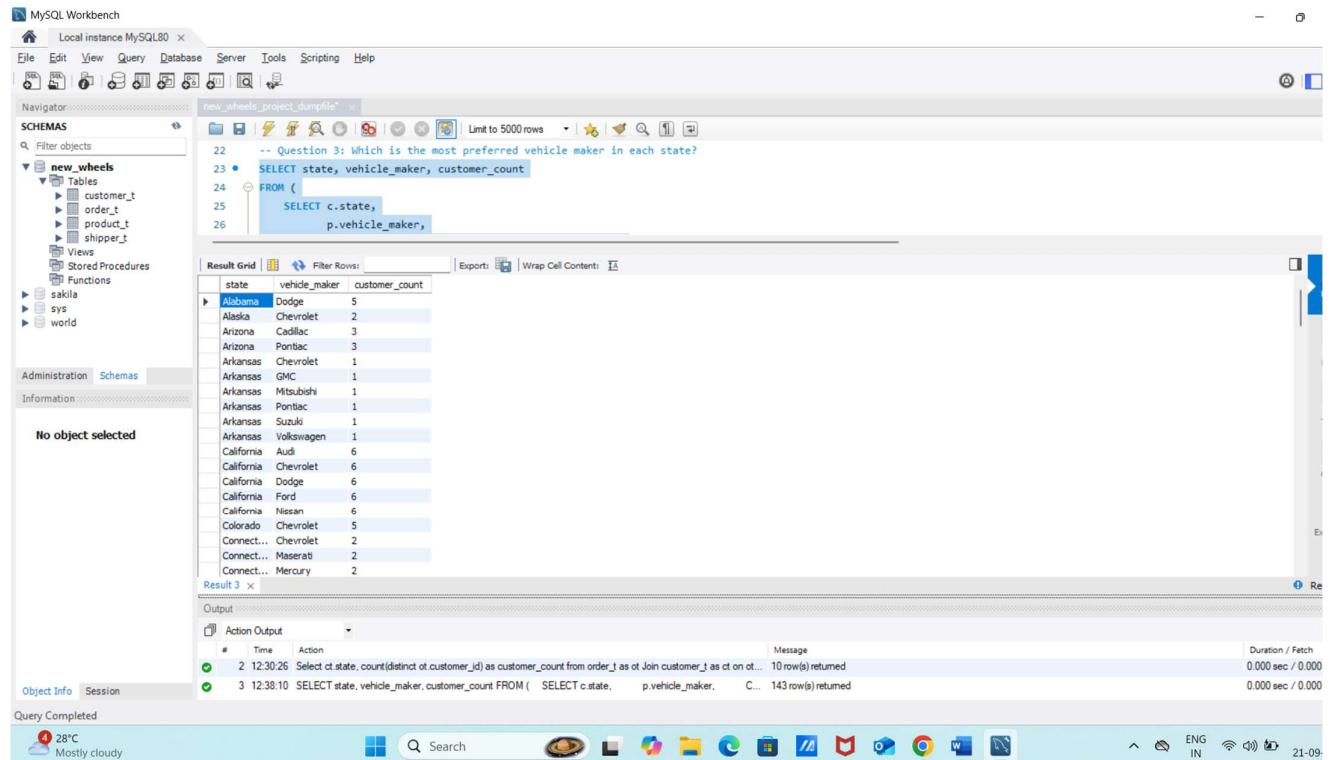
```

p.vehicle_maker,
COUNT(DISTINCT o.customer_id) AS customer_count,
RANK() OVER (PARTITION BY c.state ORDER BY COUNT(DISTINCT o.customer_id)
DESC) AS rnk

FROM order_t o
JOIN customer_t c ON o.customer_id = c.customer_id
JOIN product_t p ON o.product_id = p.product_id
GROUP BY c.state, p.vehicle_maker
)t
WHERE rnk = 1
ORDER BY state;

```

Output:



The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** new_wheels_project_dumpfile
- Tables:** customer_t, order_t, product_t, shipper_t
- Query:**

```

-- Question 3: Which is the most preferred vehicle maker in each state?
SELECT state, vehicle_maker, customer_count
FROM (
    SELECT c.state,
           p.vehicle_maker,
           COUNT(DISTINCT o.customer_id) AS customer_count
    FROM order_t o
    JOIN customer_t c ON o.customer_id = c.customer_id
    JOIN product_t p ON o.product_id = p.product_id
    GROUP BY c.state, p.vehicle_maker
)t
WHERE rnk = 1
ORDER BY state;

```
- Result Grid:**

state	vehicle_maker	customer_count
Alabama	Dodge	5
Alaska	Chevrolet	2
Arizona	Cadillac	3
Arizona	Pontiac	3
Arkansas	Chevrolet	1
Arkansas	GMC	1
Arkansas	Mitsubishi	1
Arkansas	Pontiac	1
Arkansas	Suzuki	1
Arkansas	Volkswagen	1
California	Audi	6
California	Chevrolet	6
California	Dodge	6
California	Ford	6
California	Nissan	6
Colorado	Chevrolet	5
Connect...	Chevrolet	2
Connect...	Maserati	2
Connect...	Mercury	2
- Object Info:** No object selected
- Session:** Object Completed
- System:** Weather: 28°C Mostly cloudy, Taskbar with various icons, System tray showing ENG IN, 21-09.

Observations and Insights:

- It can be seen all the customers from different states have varied choices for selection of car makers.

- For Alabama State Dodge is most preferred on the other for Colorado its Chevrolet. For Texas its Chevrolet and for Arizona its Pontiac.
- California has preference to 5 Brands together having equal customers for those Brands; Audi, Chevrolet, Dodge, Ford and Nissan.
- Each Brands have 6 customers each in California State.
- This buying pattern is varied as customers from California not only opt for durable car segments but also opt for Luxury segments too.

- Carolina (North and South) has the customer base who prefer Luxury brands more than the mid segment brands. Volvo, Acura, BMW, Jaguar are some of the brands along with other luxury brands customers in this state.
- It shows about high spending power of the customers in this state.
- If a single Brand has to be selected over all the states with a uniform preference, it will be Chevrolet as it has got its customer base in almost all the states.

Question 4: Find the overall average rating given by the customers. What is the average rating in each quarter? Consider the following mapping for ratings: "Very Bad": 1, "Bad": 2, "Okay": 3, "Good": 4, "Very Good": 5

Solution Query:

```

SELECT AVG(rating) AS overall_avg_rating
FROM (
  SELECT CASE customer_feedback
    WHEN 'Very Bad' THEN 1
    WHEN 'Bad' THEN 2
    WHEN 'Okay' THEN 3
    WHEN 'Good' THEN 4
    WHEN 'Very Good' THEN 5
  END AS rating
  FROM order_t
) r;
-- Average rating per quarter

```

```
SELECT quarter_number, AVG(rating) AS avg_rating
FROM (
    SELECT quarter_number,
        CASE customer_feedback
            WHEN 'Very Bad' THEN 1
            WHEN 'Bad' THEN 2
            WHEN 'Okay' THEN 3
            WHEN 'Good' THEN 4
            WHEN 'Very Good' THEN 5
        END AS rating
    FROM order_t
) r
GROUP BY quarter_number
ORDER BY quarter_number;
```

Output:

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

new_wheels

Tables

- customer_t
- order_t
- product_t
- shipper_t

Views

Stored Procedures

Functions

skils

sys

world

Administration Schemas

Information

No object selected

new_wheels_project_dumpfile.x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

```
38 -- Question 4: Find the overall average rating given by the customers. What is the average rating in each quarter? Consider the following mapping for ratings: "Very Bad": 1.
39 -- Overall average rating
40 • SELECT AVG(rating) AS overall_avg_rating
41 FROM (
42     SELECT CASE customer_feedback
43         WHEN 'Very Bad' THEN 1
44         WHEN 'Bad' THEN 2
45         WHEN 'Okay' THEN 3
46         WHEN 'Good' THEN 4
47         WHEN 'Very Good' THEN 5
48     END AS rating
49     FROM order_t
50 ) r;
51
```

overall_avg_rating
3.1350

Result 8 x Result 9

Action Output

Time Action

8 22:21:27 SELECT AVG(rating) AS overall_avg_rating FROM (SELECT CASE customer_feedback WHEN '...

Message

1 row(s) returned

Duration / Fetch 0.016 sec / 0.000

Object Info Session

ENG IN 18-09

News for you

Mark Zuckerberg...

Search

```

MySQL Workbench
Local instance MySQL80 x
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
new_wheels
Tables
customer_t
order_t
product_t
shipper_t
Views
Stored Procedures
Functions
sakila
sys
world
Administration Schemas
Information
No object selected
Result Grid Filter Rows: Export: Wrap Cell Content: 15
quarter_number avg_rating
1 3.5548
2 3.5550
3 2.9563
4 2.3970
Result 8 Result 9 x
Output
Action Output
# Time Action
8 22:21:27 SELECT AVG(rating) AS overall_avg_rating FROM (
SELECT CASE customer_feedback
WHEN 'Very Bad' THEN 1
WHEN 'Bad' THEN 2
WHEN 'Okay' THEN 3
WHEN 'Good' THEN 4
WHEN 'Very Good' THEN 5
END AS rating
FROM order_t
) r;
Message
1 row(s) returned
Duration / Fetch
0.016 sec / 0.000
Object Info Session

```

Observations and Insights:

- The Overall average ratings across the year is 3.14
- Highest Average rating was received in Second Quarter with 3.555 and in First Quarter it was marginally lower at 3.5548
- Worst ratings were given in Fourth quarter with 2.397 and in third it was 2.956
- This is a varied response from the customers as during 1st and 2nd quarter ratings are good or okay but in the third and fourth quarter suddenly these ratings fall to Bad or Very Bad.
- New Wheels should analyze the feedbacks for these drops in ratings. Mostly Third and Fourth Quarters are when Holiday Season begins or is about to end, may be customers are not satisfied either with the post sales service, availability of the preferred brands or even delay in shipments can also make a major impact on reviews.

Question 5: Find the percentage distribution of feedback from the customers. Are customers getting more dissatisfied over time?

Solution Query:

```
SELECT quarter_number,
```

```
100.0 * SUM(CASE WHEN customer_feedback = 'Very Bad' THEN 1 ELSE 0 END) /
COUNT(*) AS pct_very_bad,
```

```
100.0 * SUM(CASE WHEN customer_feedback = 'Bad' THEN 1 ELSE 0 END) /
COUNT(*) AS pct_bad,
```

```

    100.0 * SUM(CASE WHEN customer_feedback = 'Okay' THEN 1 ELSE 0 END) /
COUNT(*) AS pct_okay,
    100.0 * SUM(CASE WHEN customer_feedback = 'Good' THEN 1 ELSE 0 END) /
COUNT(*) AS pct_good,
    100.0 * SUM(CASE WHEN customer_feedback = 'Very Good' THEN 1 ELSE 0 END) /
COUNT(*) AS pct_very_good
FROM order_t
GROUP BY quarter_number
ORDER BY quarter_number;

```

Output:

The screenshot shows the MySQL Workbench interface. The top window displays the SQL query for calculating satisfaction percentages by quarter. The bottom window shows the resulting data grid.

```

MySQL Workbench - Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
File Edit View Query Database Server Tools Scripting Help
Navigator: new_wheels_project_dumpfile.x
SCHEMAS: new_wheels
Tables: customer_t, order_t, product_t, shipper_t, Views, Stored Procedures, Functions, sys, world
Schemas: Administration Schemas
Information: No object selected
Result Grid: Filter Rows: Export: Wrap Cell Content: 
quarter_number pct_very_bad pct_bad pct_okay pct_good pct_very_good
1 10.96774 11.29032 19.03226 28.70968 30.00000
2 14.88550 14.12214 20.22901 22.13740 28.62595
3 17.90393 22.70742 21.83406 20.96070 16.59389
4 30.65327 29.14573 20.10050 10.05025 10.05025

```

Observations and Insights:

- Quarter 1 has highest level of satisfied customers with over 58% of customers in the Good and Very Good category.
- With slight decrease in the satisfaction level Second Quarter has over 50% of satisfied customer in Good and Very Good category.
- Third and Fourth Quarter have highest number of dissatisfied customers with around 62% in third quarter are from Very Bad to Okay category and over 40% in Very Bad to Bad category. Fourth Quarter is worst with 60% in Very Bad and Bad Category and 80% in Very Bad to Okay Category.

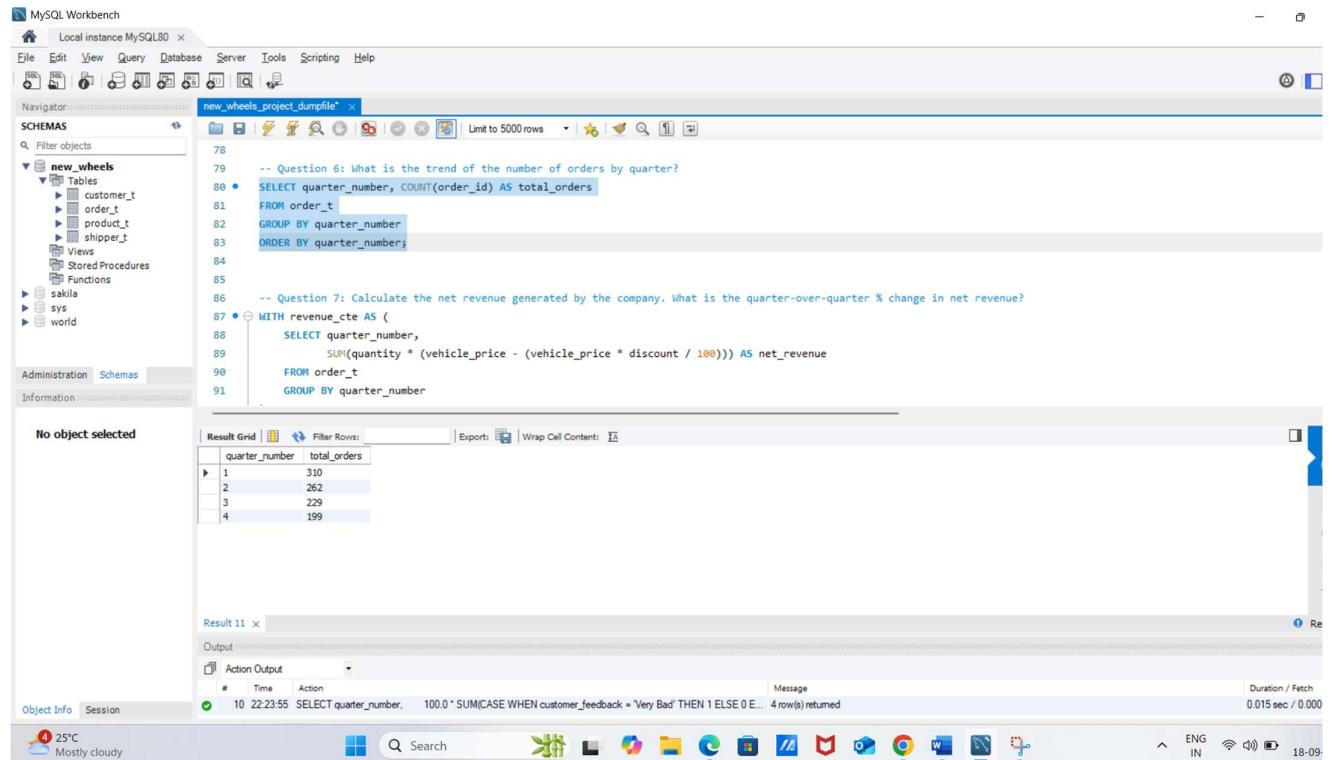
- This clearly indicates that Customers Dissatisfaction level gradually increases from Quarter 1 and reaches its peak in the Fourth Quarter.
- As it can be seen from above question also with the average ratings there is major issue with New Wheels Operational aspects either because of Shipment Delivery or due to availability of the required brand models and with the Post Sales Services.
- This can impact the overall sales of New Wheels in the coming years and need to be worked on.

Question 6: What is the trend of the number of orders by quarter?

Solution Query:

```
SELECT quarter_number, COUNT(order_id) AS total_orders
FROM order_t
GROUP BY quarter_number
ORDER BY quarter_number;
```

Output:



The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the schema `new_wheels` with tables `customer_t`, `order_t`, `product_t`, and `shipper_t`.
- Query Editor:** Contains the SQL query:

```
-- Question 6: What is the trend of the number of orders by quarter?
SELECT quarter_number, COUNT(order_id) AS total_orders
FROM order_t
GROUP BY quarter_number
ORDER BY quarter_number;
```
- Result Grid:** Displays the results of the query:

quarter_number	total_orders
1	310
2	262
3	229
4	199
- Object Info:** Shows the query details:
 - # 10 22:23:55 SELECT quarter_number, COUNT(CASE WHEN customer_feedback = 'Very Bad' THEN 1 ELSE 0 END) AS total_orders FROM order_t GROUP BY quarter_number
 - Time: 0.015 sec / 0.000
 - Action: 4 row(s) returned
- System Bar:** Includes the Windows taskbar with icons for Start, Search, File Explorer, Task View, Mail, Photos, Videos, Google Chrome, Microsoft Edge, and File Explorer.

Observations and Insights:

- The number of Orders is highest in First Quarter with 310 Orders out of the total 1000 orders which constitute to 31% of the Total order over the year.
- Quarter 2 saw a decline in orders and sales dropped to 262 orders.
- Third Quarter again saw a drop and Sales further dipped to 229.

- Fourth Quarter was hit majorly with sales dropping to below 200 throughout the year. Fourth Quarter saw a decline of sales of 35.8% in comparison to First Quarter which is a very High Percentage downfall for a company.

Question 7: Calculate the net revenue generated by the company. What is the quarter-over-quarter % change in net revenue?

Solution Query:

```
WITH revenue_cte AS (
    SELECT quarter_number,
        SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS net_revenue
    FROM order_t
    GROUP BY quarter_number
)
SELECT quarter_number,
    net_revenue,
    LAG(net_revenue) OVER (ORDER BY quarter_number) AS prev_revenue,
    ROUND(((net_revenue - LAG(net_revenue) OVER (ORDER BY quarter_number)) /
        LAG(net_revenue) OVER (ORDER BY quarter_number)) * 100, 2) AS qoq_change_pct
FROM revenue_cte
ORDER BY quarter_number;
```

Output:

The screenshot shows the MySQL Workbench interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar (Navigator) shows the schema 'new_wheels' with tables like customer_t, order_t, product_t, and shipper_t. The main area displays a SQL query and its results.

```
-- Question 7: Calculate the net revenue generated by the company. What is the quarter-over-quarter % change in net revenue?
WITH revenue_cte AS (
    SELECT quarter_number,
           SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS net_revenue
    FROM order_t
   GROUP BY quarter_number
)
SELECT quarter_number,
       net_revenue,
       LAG(net_revenue) OVER (ORDER BY quarter_number) AS prev_revenue,
       ROUND(((net_revenue - LAG(net_revenue) OVER (ORDER BY quarter_number)) /
              LAG(net_revenue) OVER (ORDER BY quarter_number)) * 100, 2) AS qoq_change_pct
  FROM revenue_cte
 ORDER BY quarter_number;
```

The Result Grid shows the following data:

quarter_number	net_revenue	prev_revenue	qoq_change_pct
1	39421580.15929600		
2	32715830.33996200	39421580.15929600	-17.01
3	29229896.19364900	32715830.33996200	-10.66
4	23346779.63060600	29229896.19364900	-20.13

The bottom status bar shows the following information: 25°C Mostly cloudy, 11 22:25:04, Duration / Fetch 0.016 sec / 0.000, ENG IN, 18-09.

Observations and Insights:

- The Net Revenue was highest in Quarter 1 with 30.4 Million of Sales.
- Quarter 2 started showing a decline in Sales with 32.71 Million of Sales with a drop of 17.01%.
- In Third Quarter it got further declined with 29.22 Million of Sales and drop of 10.66% in comparison to Second Quarter.
- Fourth Quarter saw a sharp decline in the orders with Sales dipping below 25 Million and reaching 23.34 Million with a drop of 20.13% over the Third Quarter.
- Overall the Sales saw a continuous decline over the year with the sales dipping by almost 41% from Quarter 1 to Quarter 4.
- In consideration with the above Question Total Order declined by 35.8% and Sales Declined by 41% from the First Quarter to Fourth.

Question 8: What is the trend of net revenue and orders by quarters?

Solution Query:

```
SELECT quarter_number,  
       SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS net_revenue,  
       COUNT(order_id) AS total_orders  
FROM order_t  
GROUP BY quarter_number  
ORDER BY quarter_number;
```

Output:

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the database schema for the "new_wheels" database, including tables like customer_t, order_t, product_t, shippers_t, and views.
- Query Editor:** Displays the SQL query for Question 8, which selects net revenue and total orders grouped by quarter number.
- Result Grid:** Shows the output of the query, displaying four rows of data:

quarter_number	net_revenue	total_orders
1	39421580.15929600	310
2	32715830.33996200	262
3	29229896.19364900	229
4	23346779.63060600	199

- Object Info:** Shows the execution details: 12 rows affected, 4 row(s) returned, duration 0.016 sec / 0.000.
- Session:** Shows system information including weather (25°C, Mostly cloudy), system icons, and a taskbar at the bottom.

Observations and Insights:

- Net Revenue and Orders are highest in Quarter 1.
- Second Quarter showed a decline in Net Revenue as well as the Orders.
- Third and Fourth Quarter showed a sharp fall in Revenue as well as the Orders.
- Considering the Per Order Revenue over the Quarters it remained almost same from 127166 in First Quarter, 124869 in Second Quarter, 127641 in Third quarter, 117320 in Fourth Quarter.

Question 9: What is the average discount offered for different types of credit cards?

Solution Query:

```
SELECT c.credit_card_type, AVG(o.discount) AS avg_discount  
FROM order_t o  
JOIN customer_t c ON o.customer_id = c.customer_id  
GROUP BY c.credit_card_type  
ORDER BY avg_discount DESC;
```

Output:

The screenshot shows the MySQL Workbench interface with a query editor and a result grid.

Query Editor:

```
115 GROUP BY c.credit_card_type  
116 ORDER BY avg_discount DESC;  
117  
118  
119 -- Question 10: What is the average time taken to ship the placed orders for each quarter?
```

Result Grid:

credit_card_type	avg_discount
laser	0.643846
mastercard	0.629500
maestro	0.624219
visa-electron	0.623469
china-unionpay	0.622174
instapayment	0.60625
americanexpress	0.616327
diners-club-us-ca	0.614615
diners-club-carte-blanche	0.614490
switch	0.610233
bankcard	0.609545
jcb	0.607382
visa	0.600833
diners-club-enroute	0.599792
solo	0.585000
diners-club-international	0.584000

Output Panel:

#	Time	Action	Message	Duration / Fetch
9	14:04:32	SELECT quarter_number, SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS net_revenue...	4 row(s) returned	0.016 sec / 0.000
10	14:19:16	SELECT c.credit_card_type, AVG(o.discount) AS avg_discount FROM order_t o JOIN customer_t c ON o.cust...	16 row(s) returned	0.000 sec / 0.000

Observations and Insights:

- The Highest Discount is offered by Laser which is of around 0.64.
- Lowest Discount is offered by Diner-Club-International which is around 0.58.
- Discounts offered by various service providers do not have major difference and ranges from 0.58 to 0.64
- Except Solo and Diner-Club-International all the providers offers a discount of 0.60 or more up to 0.64

Question 10: What is the average time taken to ship the placed orders for each quarter?

Solution Query:

```
SELECT quarter_number, AVG(DATEDIFF(ship_date, order_date)) AS avg_shipping_days  
FROM order_t  
GROUP BY quarter_number  
ORDER BY quarter_number;
```

Output:

The screenshot shows the MySQL Workbench interface. In the top navigation bar, 'Local instance MySQL80' is selected. The 'Query' tab is active, displaying the SQL query for Question 10. Below the query, the 'Result Grid' shows the output:

quarter_number	avg_shipping_days
1	57.1677
2	71.1107
3	117.7555
4	174.0955

At the bottom of the interface, the system tray shows the date and time as 18-09.

Observations and Insights:

- Minimum Shipping Days required in Quarter 1 with 57 Days.
- Maximum Shipping Days required is in Quarter 4 with 174 Days.
- Quarter 2 and 3 have 71 and 118 Shipping Days respectively.
- This provides clear reason for the continuous decline in Orders, Net Revenue and Increase in Customer Dissatisfaction Level.
- If the Shipping of vehicle is going to take almost Half a Year, then Customers will be dissatisfied.

Business Metrics Overview

Total Revenue	Total Orders	Total Customers	Average Rating
124.71 Millions	1000	994	3.1350
Last Quarter Revenue	Last quarter Orders	Average Days to Ship	% Good Feedback
23.346 Millions	199	97.9640	21.5

Total Revenue: 124.71 Millions

Query:

```
SELECT  
    SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS total_revenue  
FROM order_t;
```

Total Orders: 1000

Query:

```
SELECT COUNT(order_id) AS total_orders  
FROM order_t;
```

Total Customers: 994

Query:

```
SELECT COUNT(DISTINCT customer_id) AS total_customers  
FROM order_t;
```

Average Rating: 3.1350

Query:

```
SELECT AVG(rating) AS overall_avg_rating  
FROM (  
    SELECT CASE customer_feedback  
        WHEN 'Very Bad' THEN 1  
        WHEN 'Bad' THEN 2  
        WHEN 'Okay' THEN 3  
        WHEN 'Good' THEN 4  
        WHEN 'Very Good' THEN 5  
    END AS rating  
    FROM order_t  
) r;
```

Last Quarter Revenue: 23.346 Millions

Query:

```
SELECT SUM(quantity * (vehicle_price - (vehicle_price * discount / 100))) AS last_quarter_revenue
FROM order_t
WHERE quarter_number = (SELECT MAX(quarter_number) FROM order_t);
```

Last Quarter Orders: 199

Query:

```
SELECT COUNT(order_id) AS last_quarter_orders
FROM order_t
WHERE quarter_number = (SELECT MAX(quarter_number) FROM order_t);
```

Average Days to Ship: 97.964 Days

Query:

```
SELECT AVG(DATEDIFF(ship_date, order_date)) AS avg_days_to_ship
FROM order_t;
```

% Good Feedback: 21.5%

Query:

```
SELECT
    (100.0 * SUM(CASE WHEN customer_feedback = 'Good' THEN 1 ELSE 0 END) /
    COUNT(*)) AS pct_good_feedback
FROM order_t;
```

Business Recommendations

- Out of 994 Unique Customers of New Wheels above mentioned 4 States share approximately 35% of Total Customers Base.
- These areas should be targeted more with Marketing and Promotional Offers.
- Post Sales Services to the existing customers in these regions should be target more to spread awareness about the company through Word of Mouth.
- This will also create purchase of vehicles by existing customers as well.
- From the regions with Low Customer Base more Discounts, add on facilities should be provided to attract more customers.
- Regions like Carolina, Kentucky, Connecticut, Louisiana belong to Customers who have inclination towards Premium Brands. These types of Brands should be more of available in these Places along with their Promotions.
- Discounts in these place will not make a huge difference as Premium Customers will not be attracted by Discounts. Here by saving on Discounts, New Wheels can generate more revenue for the same models.
- Regions with very low count of customers should be pitched with affordable car segments with a higher discounts in order to increase the sales.

- New Wheels should track down Sales, Order and Sales v/s Order analysis on Monthly basis rather than Quarterly basis as this which highlight them with the Problem in depth.
- As per the Analysis through Queries, it was found that major setback for New Wheels came in Quarter 4 where sales dropped by 23% in order count. The main reason as identified for this downfall was Shipping Days.
- If Shipping Days are 174 Days, which is almost Half a Year, Customers wont wait for that long or they wont start placing order 6 months back just to continue with New Wheels. These Days needs to be brought down to at least 30 Days.
- 174 Days Shipping is like waiting time period and If a customer has to wait for these many days to buy Old Used Cars they would rather switch to New Cars where delivery time period is smaller and in line with their expectations.
- Other Potential Reason for the drop in Sales may be due to Competition in Market where same brands are available in cheaper rates.
- Market Penetration can be one of the Factors as many states have only 1 customer which clearly shows lack of customer reach in those areas.
- Variants of the available brands in the selected locations. No Market trends have been studied and dump inventory stock has been created in locations where no sales of those particular Brand or Variant has occurred.
- New Wheels can also create an agreement with some of the Credit Card Service Providers in order to provide with higher discounts if a customer purchase vehicles from them. This will pull customers towards them.
- Identification of time period where maximum orders are booked towards the available inventory. Basically, having understanding of Demand and Supply will help them boost their sales.
- Trying to approach customers who have either given Very Bad/Bad feedback and understanding their issues will help New Wheels sort out the actual problems.
- One more area where New Wheels should work, is their repetitive customers; Out of 1000 Orders over the Year 994 Orders were from New Customers. Means maximum 6 customers have repeated their purchase from New Wheels. It may be customers might be 1 who has purchased 6 additional vehicles or any combination is possible, but repetitive customers are 6 only, considering 6 o of them purchased 1 more vehicle each.
- New Wheels should work on strategies to increase their sales from existing customers also.