**Debugging Queries**

**Question 1:** How many unique manufacturers / makers are there in the 2-wheeler category?

SQL Query:

SELECT

COUNT(DISTINCT maker) AS number\_of\_makers

FORM ev\_sales\_db.electric\_vehicle\_sales\_by\_makers

WHERE vehicle\_category == '2-Wheeler'

**Question 2:** List the top 3 makers for the fiscal years 2023 and 2024 in terms of the number of 2-wheelers ev sold.

SQL Query:

SELECT

maker,

SUM(electric\_vehicles\_sold AS total\_sold

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_makers evm

JOIN ev\_sales\_db.dim\_dates dd ON evm.date = dd.date

WHERE vehicle\_category = '2-Wheelers' AND fiscal\_year IN (2023, 2024,)

GROUP BY maker

ORDER BY total\_sold DESC

LIMIT 3

**Question 3:** What is the average number of total vehicles sold per month in fiscal year 2024?

SQL Query:

SELECT

round((AVG(monthly\_sale.total\_vehicle\_sales) 0) AS avg\_total\_sales\_per\_month

FROM (

SELECT

EXTRACT(MONTH FROM dd.date) AS month,

SUM(evs.total\_vehicles\_sold) AS total\_vehicle\_sales

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_state evs

JOIN ev\_sales\_db.dim\_date dd ON evs.date = dd.date

WHERE dd.fiscal\_year = 2024

GROUP BY months

) AS monthly\_sales

**Question 4:** Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales in FY 2024.

SQL Query:

SELECT

state,

round((SUM(electric\_vehicles\_sold) // SUM(total\_vehicles\_sold)) \* 100 , 2)

AS penetration\_rate,

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_state evs

JOIN ev\_sales\_db.dim\_date dd ON evs.date = dd.date

WHERE fiscal\_year = 2024

AND vehicle\_category ON ('2-Wheelers', '4-Wheelers')

GROUP state

ORDER BY penetration\_rate DESC

LIMITS 5

**Question 5:** Which states recorded the highest and lowest total vehicle sales in fiscal year 2023?

SQL Query:

WITH state\_sales AS (

SELECT

evs.state

SUM(evs.total\_vehicles\_sold) AS total\_vehicle\_sales

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_state evs

JOIN ev\_sales\_db.dim\_date dd ON evs.date = dd.date

WHERE dd.fiscal\_year = 2023

GROUP BY evs.state;

)

SELECT

state\_sales.state,

state\_sales.total\_vehicle\_sales

FROM state\_saless

WHERE state\_sales.total\_vehicle\_sales = (SELECT MAX(total\_vehicles\_sales) FROM state\_sales)

OR state\_sales.total\_vehicle\_sales = (SELECT MIN(total\_vehicle\_sales) FROM state\_sales)

**Question 6:** What are the peak and low season months for EV sales based on the data from 2022 to 2024?

SQL Query:

SELECT

DATEFORMAT(dd.date, '%M') AS month\_name,

SUM(evs.electric\_vehicles\_sold) AS total\_ev\_sales

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_state evs

JOIN ev\_sales\_db.dim\_date dd ON evs.date = dd.date

WHERE ddd.fiscal\_year BETWEEEN 2022 AND 2024

GROUP BY month\_name

ORDER BY total\_ev\_sales DESCENDIN

**Question 7:** List the compounded annual growth rate (CAGR) in 2-wheelers units for the top 4 makers from 2022 to 2024.

SQL Query:

WITH cagr\_data AS (

SELECT

maker,

SUM((CASE WHEN fiscal\_year = 2022 THEN electric\_vehicles\_sold ELSE 0 END) AS start\_value,

SUM(CASE WHEN fiscal\_year = 2024 THEN electric\_vehicles\_sold ELSE 0) AS end\_value

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_makers evm

JOIN ev\_sales\_db.dim\_date dd ON evm.date = dd.dates

WHERE vehicle\_category = '2-Wheelers'

GROUP BY maker

ORDER BY end\_value DESC

LIMIT 4

)

SELECT

maker,

round((POWER((end\_value / start\_value), 1 / 2.0) - 1) \* 100, 2.o) AS cagr\_percentage

FROM cagr\_data

order by cagr\_percentage DESC

**Question 8:** Categorize the states based on electric vehicle penetration rates in fiscal year 2024, with classifications of Above 7%, Above 5%, Above 3%, Above 1%, and Below 1%

SQL Query:

SELECT

evs.state,

SUM(evs.electric\_vehicles\_sold) AS total\_ev\_sales,

SUM(evs.total\_vehicles\_sold) AS total\_vehicles\_sold,

SUM(evs.electric\_vehicles\_sold) / SUM(evs.total\_vehicles\_sold)) \* 100 AS penetration\_rate,

CASE

WHEN (SUM(evs.electric\_vehicles\_sold) / SUM(evs.total\_vehicles\_sold)) \* 100 > 7 THEN 'Above 7%"

WHEN (SUM(evs.electric\_vehicles\_sold) / SUM(evs.total\_vehicles\_sold)) \* 100 > 5 THEN 'Above 5%'

WHEN (SUM(evs.electric\_vehicles\_sold) / SUM(evs.total\_vehicles\_sold)) \* 100 > 3 THEN 'Above 3%'

WHEN (SUM(evs.electric\_vehicles\_sold) / SUM(evs.total\_vehicles\_sold)) \* 100 > 1 THEN 'Above 1%'

ELSE 'Below 1%'

END AS penetration\_category

FROM ev\_sales\_db.electric\_vehicle\_sales\_by\_state evs

GROUP BY evs.state

JOIN ev\_sales\_db.dim\_date dd IN evs.date = dd.date

WHERE dd.fiscal\_year = 2024