***Scania SQL Assessment : Electric Vehicle Data***

**Question 1:** Write a SQL to find the total number of registrations per state, broken down by vehicle category

Select STATE, VEHICLE\_CATEGORY, COUNT (\*) AS total\_registrations

From Electric Vehicles Data

Group by STATE, VEHICLE\_CATEGORY

Order by STATE, total\_registrations DESC ;

**Question 2:** Write a SQL to find the most common drivetrain types for each vehicle make.

Select DRIVETRAIN\_TYPE, VEHICLE\_MAKE, total\_count

From (

Select DRIVETRAIN\_TYPE, VEHICLE\_MAKE, COUNT(\*) AS total\_count, RANK() OVER(PARTITION BY VEHICLE\_MAKE ORDER BY COUNT (\*) DESC) AS rnk

From Electric Vehicles Data

Group by VEHICLE\_MAKE, DRIVETRAIN\_TYPE

) AS common\_drivetrain

WHERE RNK =1;

**Question 3:** Write a SQL to identify states with the highest number of hybrid (PHEV) vehicle registrations

Select STATE, Count(\*) AS reg\_hybrid\_phev

From Electric Vehicles Data

Where DRIVETRAIN\_TYPE = ‘PHEV’

Group by STATE

Order by reg\_hybrid\_phev DESC

**Question 4:** Write an SQL query to show the top n (say 5) vehicle make registered in 2024

Select TOP 5 VEHICLE\_MAKE, COUNT(\*) as total\_registrations

From Electric Vehicles Data

Where Year(REGISTRATION\_VALID\_DATE) = 2024

Group by VEHICLE\_MAKE

Order by total\_registrations DESC;

OR

Select VEHICLE\_MAKE, COUNT(\*) as total\_registrations

From Electric Vehicles Data

Where Year(REGISTRATION\_VALID\_DATE) = 2024

Group by VEHICLE\_MAKE

Order by total\_registrations DESC

LIMIT 5;

**Question 5:** Write a SQL to find the vehicle make that is not registered in the state in a month. Month wise data for each state.

For example: state ‘MN’ has not registered any TESLA in the month of Nov and Dec 2024. And ‘NY’ hasn’t registered any Toyota in the month of June’24

WITH vehicle\_makes AS (

Select DISTINCT VEHICLE\_MAKE

From Electric Vehicles Data

),

state\_months AS (

Select DISTINCT STATE, YEAR(REGISTRATION\_VALID\_DATE) AS year, MONTH(REGISTRATION\_VALID\_DATE) AS month

From Electric Vehicles Data

),

state\_monthly\_vehiclemakes AS (

Select DISTINCT STATE, VEHICLE\_MAKE, YEAR(REGISTRATION\_VALID\_DATE) AS year, MONTH(REGISTRATION\_VALID\_DATE) AS month

From Electric Vehicles Data

)

Select sm.STATE, vm.VEHICLE\_MAKE, sm.year, sm.month

From state\_months sm

CROSS JOIN vehicle\_makes vm

LEFT JOIN state\_monthly\_vehiclemakes smv

ON sm.STATE = smv.STATE

AND vm.VEHICLE\_MAKE = smv.VEHICLE\_MAKE

AND sm.year = smv.year

AND sm.month= smv.month

Where smv.VEHICLE\_MAKE IS NULL

Order by sm.STATE, sm.year, sm.month, vm.VEHICLE\_MAKE

**Note:** This query can also be done without CTE’s but using CTE’s would optimize the query performance by retrieving the data faster.