Electric Vehicle Sales by State in India

Easy Level Problem Statement

1) Calculate Total Number of Vehicles Sold by State.

```
SELECT StateName, SUM(QuantitySold) AS TotalVehiclesSold
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY StateName;
```

Results | Messages

	StateName	TotalVehiclesSold
1	Andaman and Nicobar Islands	15
2	Andhra Pradesh	10
3	Arunachal Pradesh	15
4	Assam	20
5	Bihar	8
6	Chandigarh	10
7	Chhattisgarh	25
8	Goa	12
9	Gujarat	18
10	Haryana	22
11	Himachal Pradesh	10

Insight : The query identifies states with the highest and lowest EV sales, helping target regions for marketing or infrastructure improvements.

2) Calculate Average Sales Price of Vehicles in Each State.

```
SELECT StateName, AVG(SalePrice) AS AverageSalePrice
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY StateName;
```

Insight : This query provides insights into the average EV sale price across states, highlighting regions with premium or budget preferences for electric vehicles.

Results | Messages

	StateName	AverageSalePrice
1	Andaman and Nicobar Islands	500000.000000
2	Andhra Pradesh	500000.000000
3	Arunachal Pradesh	650000.000000
4	Assam	700000.000000
5	Bihar	720000.000000
6	Chandigarh	650000.000000
7	Chhattisgarh	600000.000000
8	Goa	750000.000000
9	Gujarat	680000.000000
10	Haryana	540000.000000

3) Find List of Manufacturers and their Vehicles.

```
SELECT ManufacturerName, Model
FROM Manufacturers
JOIN Vehicles ON Manufacturers.ManufacturerID = Vehicles.ManufacturerID;
```

Results | Messages

	ManufacturerName	Model
1	Tesla	Tesla Model 3
2	Tesla	Tesla Model S
3	Tesla	Tesla Model X
4	Tesla	Tesla Model Y
5	NIO	Nissan Leaf
6	NIO	Nissan Ariya
7	NIO	Nissan e-NV200
8	BYD	Chevrolet Bolt EV
9	BYD	Chevrolet Spark EV
10	BYD	Chevrolet Volt

Insight : This query provides a comprehensive list of manufacturers and their corresponding vehicle models, helping to identify the product portfolio of each manufacturer in the electric vehicle market.

4) Calculate Sales Quantity for a Specific Vehicle.

```
SELECT Model, SUM(QuantitySold) AS TotalSales
FROM ElectricVehicleSales
JOIN Vehicles ON ElectricVehicleSales.VehicleID = Vehicles.VehicleID
WHERE Model = 'Tesla Model 3'
GROUP BY Model;
```

Results | Messages

	Model	TotalSales
1	Tesla Model 3	10

Insight : This query shows the total sales quantity for the specific vehicle model "Tesla Model 3," offering insight into the market performance and popularity of this model.

5) Calculate Number of Vehicles Sold by Region.

```
SELECT Region, SUM(QuantitySold) AS TotalSales
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY Region;
```

Results | Messages

	Region	TotalSales
1	State	424
2	Union Territory	25

Insight : This query provides insights into regional vehicle sales performance by calculating the total number of electric vehicles sold in each region. This helps identify which regions have higher adoption rates and can guide region-specific marketing strategies.

Medium Level Problem Statement

6) Find Top 5 States by Total Vehicle Sales.

```
SELECT TOP 5 StateName, SUM(QuantitySold) AS TotalSales
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY StateName
ORDER BY TotalSales DESC;
```

Results | Messages

	StateName	TotalSales
1	Rajasthan	30
2	Chhattisgarh	25
3	Punjab	25
4	Haryana	22
5	Mizoram	22

Insight : This query identifies the top 5 states with the highest total vehicle sales. Insights from this can guide manufacturers and marketers to focus their efforts and resources on high-performing states, potentially increasing sales and market share.

7) Calculate Total Revenue Generated by Each Manufacturer.

```
SELECT ManufacturerName, SUM(SalePrice * QuantitySold) AS TotalRevenue
FROM ElectricVehicleSales
JOIN Vehicles ON ElectricVehicleSales.VehicleID = Vehicles.VehicleID
JOIN Manufacturers ON Vehicles.ManufacturerID = Manufacturers.ManufacturerID
GROUP BY ManufacturerName;
```

Results | Messages

	ManufacturerName	TotalRevenue
1	Bollinger Motors	39840000.00
2	BYD	22980000.00
3	Fisker Automotive	37950000.00
4	Lordstown Motors	6500000.00
5	Lucid Motors	28470000.00
6	NIO	36240000.00
7	Polestar	10750000.00
8	Rivian	33370000.00
9	Tesla	34510000.00
10	XPeng Motors	42560000.00

Insight : This query calculates the total revenue generated by each manufacturer. It provides insights into the financial performance of manufacturers, helping businesses evaluate market dominance, identify high-revenue manufacturers, and allocate resources for partnerships or production strategies.

8) Calculate Average Sales per Month for Each Vehicle.

```
SELECT Model, AVG(QuantitySold) AS AverageSalesPerMonth
FROM ElectricVehicleSales
JOIN Vehicles ON ElectricVehicleSales.VehicleID = Vehicles.VehicleID
GROUP BY Model;
```

Results | Messages

	Model	AverageSalesPerMonth
1	Audi A3 e-tron	22
2	Audi e-tron	5
3	Audi Q4 e-tron	18
4	BMW i3	9
5	BMW i4	16
6	BMW i8	11
7	BMW X3 xDrive30e	13
8	Chevrolet Bolt EV	22
9	Chevrolet Spark EV	10
10	Chevrolet Volt	14

Insight : This query gives an average monthly sales figure for each vehicle model, which helps in forecasting future sales.

9) Calculate Sales by State and Vehicle Type.

```
SELECT StateName, VehicleType, SUM(QuantitySold) AS SalesQuantity
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
JOIN Vehicles ON ElectricVehicleSales.VehicleID = Vehicles.VehicleID
GROUP BY StateName, VehicleType
ORDER BY SalesQuantity DESC;
```

Results | Messages

	StateName	VehicleType	SalesQuantity
1	Rajasthan	SUV	30
2	Punjab	SUV	25
3	Chhattisgarh	Hatchback	25
4	Haryana	Hatchback	22
5	Mizoram	Sedan	22
6	Assam	SUV	20
7	Tripura	SUV	20
8	Nagaland	SUV	20
9	Meghalaya	SUV	18
10	Telangana	SUV	18

Insight : This query shows the most popular vehicle types in each state, helping manufacturers focus on regional preferences.

10) Calculate Average Price Of EV by Manufacturer.

```
SELECT Manufacturers.ManufacturerName,AVG(Vehicles.Price) AS AverageVehiclePrice
FROM Vehicles
JOIN Manufacturers ON Vehicles.ManufacturerID = Manufacturers.ManufacturerID
GROUP BY Manufacturers.ManufacturerName;
```

Results | Messages

	ManufacturerName	AverageVehiclePrice
1	Bollinger Motors	4375000.000000
2	BYD	2100000.000000
3	Fisker Automotive	6066666.666666
4	Lordstown Motors	7000000.000000
5	Lucid Motors	5833333.333333
6	NIO	2733333.333333
7	Polestar	6250000.000000
8	Rivian	5500000.000000
9	Tesla	6875000.000000
10	XPeng Motors	9000000.000000

Insight : This query shows the average vehicle price for each manufacturer, highlighting pricing trends across brands. It helps compare manufacturers based on vehicle prices.

Adavnce Level Problem Statement

11) Find Top 3 States with the Highest Average Vehicle Price.

```
SELECT TOP 3 StateName, AVG(SalePrice) AS AveragePrice
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY StateName
ORDER BY AveragePrice DESC;
```

Results | Messages

	StateName	AveragePrice
1	Uttarakhand	800000.000000
2	Goa	750000.000000
3	Uttar Pradesh	750000.000000

Insight : This gives insights into which states are buying higher-priced vehicles, which could inform pricing strategies.

12) Find Most Popular Vehicle by Region.

```
SELECT Region, Model, SUM(QuantitySold) AS TotalSales
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
JOIN Vehicles ON ElectricVehicleSales.VehicleID = Vehicles.VehicleID
GROUP BY Region, Model
ORDER BY TotalSales DESC;
```

Results | Messages

	Region	Model	TotalSales
1	State	Ford Mustang Mach-E	30
2	State	Mercedes-Benz EQA	25
3	State	Nissan Leaf	25
4	State	Audi A3 e-tron	22
5	State	Chevrolet Bolt EV	22
6	State	Hyundai Ioniq 5	20
7	State	Mercedes-Benz EQC	20
8	State	Tesla Model X	20

Insight : This query identifies the most popular vehicle models by region, which can help with targeted marketing strategies.

13) Calculate Vehicle Sales Correlation with State Population.

```
SELECT StateName, SUM(QuantitySold) AS TotalSales, Population,
   SUM(QuantitySold) * 1.0 / Population AS SalesPerCapita
FROM ElectricVehicleSales
JOIN States ON ElectricVehicleSales.StateID = States.StateID
GROUP BY StateName, Population;
```

Results | Messages

	StateName	TotalSales	Population	SalesPerCapita
1	Andaman and Nicobar Islands	15	380581	0.000039413423
2	Sikkim	12	610577	0.000019653540
3	Chandigarh	10	1055450	0.000009474631
4	Mizoram	22	1097206	0.000020050929
5	Arunachal Pradesh	15	1382611	0.000010849038
6	Goa	12	1458545	0.000008227377
7	Nagaland	20	2383000	0.000008392782
8	Manipur	5	2855794	0.000001750826

Insight : This shows how vehicle sales correlate with the population size of each state, helping to identify market potential.

14) Get The TOP 10 Vehicle Model With Highest Sales Quantity and Price in 2024.

```
SELECT V.MODEL, EV.QUANTITYSOLD , SUM(EV.QUANTITYSOLD * SALEPRICE) AS TOTALSALES
FROM ElectricVehicleSales AS EV
JOIN Vehicles AS V
ON EV.VehicleID = V.VehicleID
WHERE YEAR (EV.SALESDATE) = 2024
GROUP BY V.Model , EV.QuantitySold
ORDER BY TOTALSALES DESC;
```

Results | Messages

	MODEL	QUANTITYSOLD	TOTALSALES
1	Ford Mustang Mach-E	30	21000000.00
2	Mercedes-Benz EQA	25	18500000.00
3	Nissan Leaf	25	15000000.00
4	Mercedes-Benz EQC	20	14400000.00
5	Tesla Model X	20	14000000.00
6	Hyundai Ioniq 5	20	13600000.00
7	Hyundai Kona Electric	18	13140000.00
8	Audi A3 e-tron	22	12980000.00

Insight : It helps businesses make decisions on inventory management, pricing strategies, and marketing focus based on vehicle sales performance.

15) Get The State With The Highest Average Price For EVS Sales in 2024.

```
SELECT TOP 1 S.STATENAME, AVG(EV.SALEPRICE) AS AVERAGE_PRICE
FROM ElectricVehicleSales  AS EV
JOIN STATES AS S
ON EV.StateID = S.StateID
WHERE YEAR(SALESDATE)=2024
GROUP BY S.STATENAME
ORDER BY AVERAGE_PRICE DESC;
```

Results | Messages

	STATENAME	AVERAGE_PRICE
1	Uttarakhand	800000.000000

Insight : It provides insights into which models are the most popular, helping the business prioritize production and inventory strategies.